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ABSTRACT

Environmental education materials presented in this book are the ideas of community members interested in contributing to environmental awareness. Many of them are developed around the Tallahassee Junior Museum and its Pioneer Farm. They may also, however, provide ideas that can be adapted to other facilities or localities. The booklets in this volume, developed by various community and education groups, include: (1) materials to guide the activities and attitudes of students who wish to communicate environmental awareness to others, (2) outdoor activities for grades K-3, (3) a unit on trees for intermediate grade children, (4) environmental lessons for the physically and mentally handicapped, (5) "how-to" information on handicrafts used by the early pioneers, (6) guides and check lists of ways in which citizens of every age can help to save environmental quality, (7) learning activities for investigating swamp life, (8) materials to aid personal discovery in the historical setting of the Pioneer Farm, and (9) a map game that can be adapted to any locality. (JH)

# WAYS

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TO ENVIRONMENTAL EDUCATION AT
THE TALLAHASSEE JUNIOR MUSEUM

00002

COMMUNITY LEADERS' TRAINING IN ENVIRONMENTAL STUDIES

July, 1974 - to June, 1975

A CO-OPERATIVE COMMUNITY PROJECT FUNDED UNDER TITLE I
OF THE HIGHER EDUCATION ACT OF 1965

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The instructional materials and activities printed in each of the thirty booklets in this series are the outgrowth of one-week workshops conducted at the Tallahassee Junior Museum. The suggested activities are those of the participants, the project staff, and occasional consultants. The activities are printed and distributed to help environmental educators in a wide variety of community settings and to foster others' creativity. The activities presented and the positions taken on environmental issues represent the views of the authors and not the agencies, groups, and institutions which they represent.

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# WAYS TO ENVIRONMENTAL EDUCATION

Volume II

Edited by:

David LaHart
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March 1975
The Florida State University

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*INTRODUCTION*

*Environmental education is largely recognized as existing in both formal and non-formal educational settings. Environmental educators have, for the most part, concentrated their efforts within formal education sectors-K through university-and have neglected the many opportunities for public educational adventures where community resources and adult groups can provide tremendous "ways for environmental education" to happen.*

*In an effort to exploit this potential, the Environmental Education Project at Florida State University developed a proposal funded under Title I of the Higher Education Act of 1965 designed to glean ideas from active members of the community. The proposal "Adult Community Leaders Training in Environmental Studies" produced a series of booklets containing the ideas, activities and approaches these community groups took in educating their membership or target groups about the environment. This volume contains ten more of these booklets produced by community groups. Volume I contained the first ten. Current plans call for at least one more volume to be produced.*

*Materials written by participating groups were distributed by those groups and by the project staff. This insured the "ways" reached the target audience as well as other interested and involved environmental educators. Many of the project materials have been reproduced by school districts and private organizations such as the Girl Scouts and the Audubon Society.*

*We began this project with a feeling that people were the most poorly utilized environmental education resource in Florida. This project has reinforced that feeling. The "ways" booklets provide the proof. People outside of the formal educational sector have ideas ....good ideas.*

*If educators are willing to involve people, listen to their ideas and work with them to develop some structure, many more "ways" to environmental education can be discovered.*

*D.L.*
*R.F.A.*
*J.D.*

*Tallahassee, 1975*

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S.T.E.P.
Students Toward
Environmental Participation

WHAT IS STEP?

STEP stands for Students Toward Environmental Participation. STEP members are high school students who:

1. Are environmentally aware of the wholeness of the earth, who understand the inter-dependence of all living things, and who can relate to nature in a personal manner;

2. Are personally committed to the redemption of the environment, both human and natural;

3. Prove their own commitment by communicating environmental awareness to younger children in Environmental Study Areas as a group or on a one-to-one personal basis. STEP members also communicate these same environmental values and concerns to their peers and elders by many other methods using a variety of techniques.

**********

STRUCTURE:

The basic structure of STEP is facilitative umbrella-type organization rather than administrative to coordinate community and student resources and to provide effective communication and mutual support of the needs of both resources. Each basic STEP unit is to be regarded as a local group possessing unique characteristics but dedicated to the basic philosophy of STEP. This individuality must be respected. Suggestions for programs for individual units can be made, but not <u>set</u> programs since each knows best the needs of its community and the capability of its own membership.

The <u>basic unit</u> of STEP is the group of students in a single high school. And you're it.

<u>TECHNIQUES</u>

Here are some teaching techniques you may find helpful.

<u>Hints</u>

A. Participate in an activity you ask others to do.
B. Try not to get in a rut. Look for changes.
C. Try new ideas, realizing that all of them will not be as successful as you'd like.
D. Share your successful techniques with others and vice versa.
E. Copy others if you want, but use your own ideas.



00007

F. ADAPTABILITY AND FLEXIBILITY: The name of the game! Age groups, cultural backgrounds, degrees of sophistication - all lead to a person's present attitude about his environment. You will have to make adjustments to those with each group you lead.

G. Make sure your environmental ethic is up for the day! Your frame of mind will rub off on your charges.

H. Pick and choose the activities that best suit you and the amount of time you have with each group. In most cases you will have only one shot with the group. Make the most of it.

Skills

A. Discussion Skills
   1. Ask questions to stimulate thinking, not test-type ones.
   2. Fit ecological concepts in when you can with ease, not because you think you have to - don't force them.
   3. Let your group teach you, and acknowledge this to your group.
   4. Encourage curiosity. Let individuals find their own items of interest.
   5. Encourage them to question.

B. Control Techniques
   1. Tell your group your rules before starting on the trail.
   2. Quiet voice, quiet children. (Usually!)
   3. Take off quickly for next "stop spot" with eager anticipation.
   4. Encourage investigation as a group.

## LEARNING WITH THE STRANDS

The strands are five avenues used to teach environmental education. They act as a handle which enables us to see our place in nature and to understand the basic interrelationships in any environment. The object is not to teach the strands per se, but that they exist in all life's situations. These five strands promote the use of the senses --seeing, touching, smelling, hearing.

S.P.I.C.E.

S. - Similarities and Varieties - Many likenesses and differences occur among living and non-living things. Finding the similarities can help you classify things into patterns to increase your understanding of the world.

P. - Patterns - In nature and in everyday living we see arrangements that are organizational, that play a special function or just are pleasing to the eye.

I. - Interaction and Interdependence - Nothing can exist by itself. Everything is constantly interacting with living and non-living things. The process continues even after death (as part of the life pattern), for dead life-forms nourish the living.

C. - Continuity and Change - Both living and non-living things are constantly changing, but some things remain the same in spite of change.

E. - Evolution and Adaptation - Living and non-living things alter to "fit" into the environment or adapt. Centuries of time of adapting may result in a new species - evolution.

The strands provide an interesting structure to explore an Environmental Study Area (E.S.A.). This is the place where we can do our thing in terms of relating to the environment and nature using the senses. ESA's may be natural, cultural, or historical areas designated for this type of study or they can be a school playground, a garbage dump, or your own backyard. An ESA is a place to love, feel, and interpret the world.

. . .It might show man's relationship to the environment whether it is positive or negative.

. . .ESA's should have an overall "sturdiness" so that continued use will not have a devastating effect on the environment.

. . .It might be at a location that makes the area convenient for regular use by area schools.

The strands and the Environmental Study Area provide a way for you to look at and communicate with your environment. You must also have ways to communicate with students, parents, teachers --everybody! Here are some ideas you may want to use.

CREATIVE COMMUNICATIONS IDEAS

Hang up a series of sheets of posterboard or wrapping paper. Invite people to write graffiti on it. Make some sheets topical such as school classroom, course, energy crisis, _____.

--Collect graffiti from every place you can find them.
--Hang the paper where the principal, the custodian, the guidance counselors, and other people who might not normally write graffiti would be tempted to do so.
--Collect "good" graffiti (by kids' choice) and get it into newspapers, etc.
--Write graffiti aimed at getting someone or something in the school to change. Use it.

**********

List the ways things are intentionally and unintentionally communicated in the classroom.

--Try to communicate something that really isn't like you.
--Discuss the unintentional communications in your classroom that bother you.
--Try to communicate a characteristic about yourself that most people don't know about.
--List the ways attitudes are communicated. Do the same with facts, feelings, propaganda.
--Make a communication map of your classroom.
--Can you communicate with yourself? How do you do it?
--Do you communicate with inanimate objects or nature? How do you do it? How is this different from people communication?

**********

In one minute you will become some animal, or flower or color or something else . . .Choose what it will be and express how it makes you feel in any way you choose.

--Ask other people what they think you should become and discuss their reasons.
--Design an animal, plant, or thing which has all the most important qualities it needs to be perfect - role play it.
--Choose an emotion. Express how it makes you feel in any way you choose.

**********

Find out what people do that they say they don't do. Find out what people don't do that they say they do. Help them and yourself bring doing and saying closer together.

--Do this with public figures.
--Do this with movies.
--Do this with TV commercials.
--Do this with your teacher.
--Do this with your principal.
--Do this with yourself.

**********

Make a list of personal strengths you think you would like to have. Make a matching list of strengths you feel you already have. Set up a scheme by which someone will teach you a strength that you would like to have.

--Make a plan to strengthen your weaknesses. Carry it out.
--Communicate a strength you have to someone who doesn't know you have it.
--Make a list of those things which some people consider strengths and others consider weaknesses. Discuss these.

**********

Take some art materials of your choice outside and use them on some aspect of the environment so that you bring some of the environment back in. Really bring it back!

**********

Some day go outside and relate the following pairs of words:
How is _____ like _____.

| | |
|---|---|
| a garbage can | a stomach |
| a kid | a number |
| a lifetime | a word |
| a school | a supermarket |
| a school | a lawn |
| time | being hungry |
| love | a waterfountain |

**********

If you want a more ambiguous assignment try this:
Take a word of your own choosing and go outside and find a metaphor for it . . . any way you can.

--Photograph, draw, paint, or make models of metaphors.
--Make metaphors for social studies, science, math words.
--Make all your metaphors relate to living things.

**********

Create a commercial for some aspect of your environment. Use any medium you choose. . .and present it to the class.

--Test your commercial by seeing what sells.
--Choose something that you think nobody would want and write a commercial for it.
--Choose something everyone wants and make it undesirable.
--What about a commercial makes its message believable? Knowing this, design your commercial to be a winner.
--How many people do your commercials have to reach to change community attitudes? Who do they have to convince?

**********

Go outside and find things you love and things you hate.

--If you took photographs or made sketches of these things, arrange them in order from most loved to least loved to least hated to most hated.
--Add someone else's photos/sketches to your arrangement. Does he agree with your ordering? Talk about it.

--Using any medium, abstractly represent love and hate.
--Did you find things you should love and should hate or things you really love and hate? Is there a difference?
--How do you react toward things you hate? things you love?

**********

Form small groups, put on blindfolds, and pass around a variety of objects to touch. Communicate your feelings from the experience.

--Take a blindfolded "trust walk", touching whatever you're led to.
--Wear a blindfold for an entire period or day. How did you feel?
--How is the sense of touch affected by feelings? Does it make a difference if you know what the object is?
--Using any medium, represent your awareness of texture, shape, and mass.

**********

Go outside and collect materials you find in your environment and create some art from them. Have each piece of art show one of the following:

--how ugly your environment is
--how beautiful your environment is
--how it makes you feel
--the joy of your environment
--the sadness of it
--how time changes your environment
--etc.

**********

Go outside and find things that represent power. Sketch, photograph, or in some other way visually describe these things. Exchange power descriptions and discuss what kind of power you see in each other's descriptions.

--What is power?
--How do you get it?
--How do you keep it?
--How do you use it?
--Who has it?
--Answer these questions by writing a poem, a play.
--Measure the amount of power described.
--Compare different kinds of power. Which power is most powerful? Least? Why?

**********

Make a list of opposite word pairs and then go outside and find objects in your environment that represent the word pairs.

--Find objects that don't look alike but are similar in some way.
--Find things that represent opposite ideas, attitudes, beliefs.
--Find things that represent similar ideas, attitudes, beliefs.
--Choose photographs taken for a previous assignment and photograph the opposite of each.
--In how many ways are the opposite things similar?
--Represent the opposites in some abstract way.
--For each word pair: which are there more of? Why?

**********

Go out and map something beneath the earth's surface. (It might help if you had aerial photos or street maps that are of the area near the school.)

--Try water witching.
--What do man-made subterranean things tell about society?
--Design a better subway, water system, sewer system, etc.
--Represent surrealistically the thing mapped.

**********

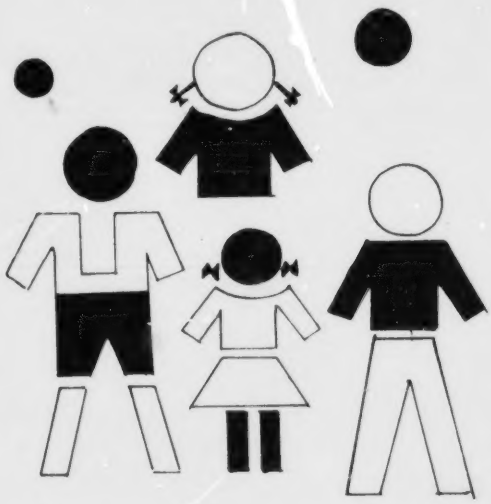
Go outside with a tape recorder and

--find and bring back sounds you like and dislike
--find and bring back morning, day, and night sounds
--How does a sound make you feel?
--Do the same sounds create the same feelings in everyone?
--Record sounds of work, play.
--Make music from your collected sounds.
--Collect things that make sound and make a sound sculpture.
--Write a poem about sounds that creates the same feelings the sounds did.

**********

Get any ten photos taken at random--from the old picture box or from magazines--and write or tell a story that includes all the pictures.

--Use the same pictures and write a different story.
--Write a story as a group.
--Represent your story using any medium.



## ACTIVITIES YOU CAN TRY

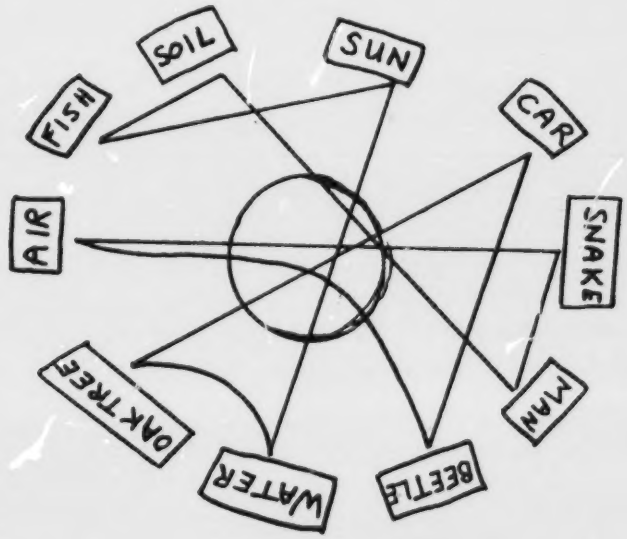
### THE WEB OF LIFE

Purpose: To illustrate how plants and animals (including man) are dependent upon each other and upon the environment (sun, air, water and soil) for survival through a "web" of inter-relationships, and what happens if the web is damaged.

Materials Needed: Ball of string; Magic marker or crayon; Scissors; "Name" cards (4" x 12")

Description: Players form a circle. Each player is given a "name" card which identifies him as some part of the environment, such as the sun, air, water, soil, different types of plants and animals, and man. (And man-made things such as cars, houses, factories, etc.) The leader begins by asking the "sun" to hold the end of a string and then unwinds the string from one player to the next, cross-crossing back and forth across the circle. As each player is connected, ask the group why a connection is important in the environment. For example, how is a tree "connected" to the sun (or dependent upon the sun), how is man connected to the tree, and so on. Any two players can be connected. Be sure to unwind the string in one continuous strand, don't cut it after connecting the players. Connect all players to at least one other player. After the connections have been made, the string will form a "web" which connects all the major parts of the "environment", as shown in the diagram below. The leader then cuts the string between any two players and asks the group what will happen to the web of life now that a connection has been broken. Follow the cut string from one player to another, showing how one broken strand can affect everything in the web since all are connected to one another. Eventually the connections lead back to the sun, the source of energy for all life.

Some lively discussion and penetrating questions often accompany this game. Of course, the leader must gauge the complexity of the game according to the group's age and abilities.

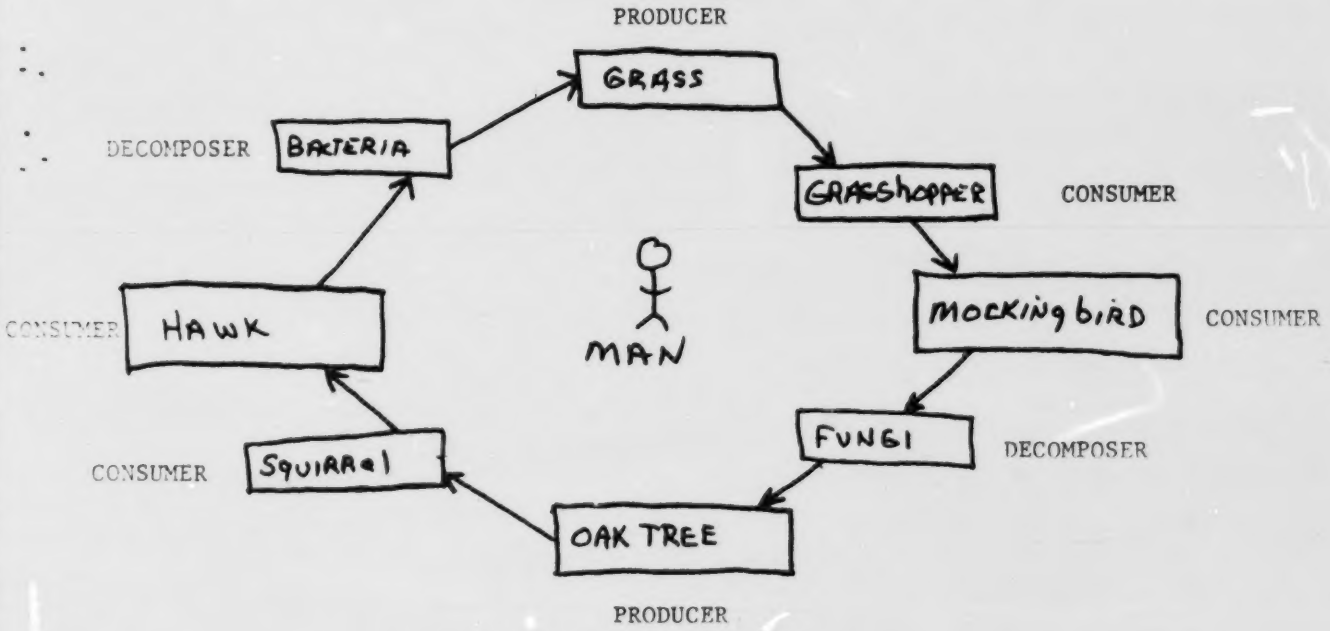


THE FOOD CHAIN

Purpose: To discover how plants and animals form a food chain of producers, consumers, and decomposers and what happens when the food chain is upset.

Materials Needed: "Name" cards

Description: Have players form a circle as shown in the diagram. Each player will be named after a plant (producer), an animal (consumer), and fungi or bacteria (decomposers). The leader (MAN) rearranges the participants into functional groupings (producer consumer decomposer producer) and has participants join hands to form a complete circle. After all participants are locked together, ask them to lean over backward as far as possible without falling. This shows the strength and unity of natural systems. Man however often upsets the system. Break one of the holds and the "chain" becomes unstable. Some participants may even fall out of the chain.




Discuss the functional role of producers, consumers and decomposers. Producers through the chemical process of photosynthesis convert raw materials to foods. Only green plants do this to any appreciable degree. All animals depend, either directly or indirectly, on green plants for their food. Both animals and plants are decomposed by bacteria and fungi. The decomposers (or rotters) recycle the raw materials contained in plants and animals and make them available for the next generation of plants.



00015

## NATURE'S KALEIDOSCOPE

(10-20 players)

**Purpose:** To illustrate how color enables a plant or animal to adapt to its environment.

**Materials Needed:** 100-200 toothpicks (evenly divided: red, green, brown, blue, yellow). Colored toothpicks can be purchased at most food stores or dyed with food coloring.

**Description:** Leader selects an area with as much variety of ground cover as possible (forest floor covered with leaves, grassy area or bare soil). Each player receives a variety of colored toothpicks. At a signal, all toothpicks are scattered about. Players then have 30 seconds to pick up as many toothpicks as they can. Player with the most toothpicks wins. The group can then divide the toothpicks according to color and discuss why they found more of certain colors than others. Generally, toothpicks with a color similar to the ground cover will be found the least. Leader can relate this to the protective coloration of animals and how this helps to camouflage them from predators. The group can also discuss how man uses protective coloration.

Also, equally important, how bright colors often help to distract a predator (such as a predator which is led away from a nest by the flight of a brightly colored male) or attract a species for reproduction (such as bees to bright flowers or drably colored female birds to brightly colored males). How can man disrupt the importance of color in nature?

## More Awareness Activities

### Sound Awareness

In a quiet spot off the trail let everybody sit down and be as quiet as possible. Ask them to try to keep from rustling leaves and twigs, etc. Once they are quiet ask them to close their eyes and listen for as many different sounds as possible. After about 15-30 seconds ask them what sounds they heard. If desired, this activity can lead to good discussions of different levels of awareness we experience, etc.

### Animal Locomotion

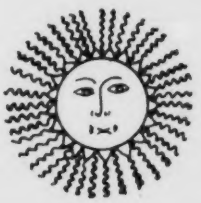
Ask the group to move from their present location to another one nearby. In so doing each person must use the type of movement of some animal other than man. You, as the leader, must be the first one to take off - hopping, crawling, slithering, etc. - and encourage the others to join you.

### Sensory Wheel

Pick a focal point (a tree, perhaps) in the area. Have everyone sit around this point. Move in close enough to have each person put his feet on the object. Lie back on the ground and ask each person to observe and feel the ground. Still lying back, ask what things they noticed and felt. If there is no focal point then start out sitting in a circle with legs straight out in front touching the feet of the person across from him, or sit cross-legged touching the knees of the people on either side of him. Then lie back on the ground and continue.

### Trust Walk

This activity blocks out one sense thereby stimulating the other senses. Let each person pick a partner. One is blindfolded. The other person is the guide. They are to hold hands. The only communication they may have is hand-to-hand. The guide must "tell" his blindfolded partner where to go and what to do with hand motions only. You will lead the way for these pairs to follow. Lead them through an area where they must step over, under, through, and around obstacles. After a few minutes let the partners switch roles and repeat the trust walk.





00017

Stone Identification

Ask each person to find a stone. Sitting cross-legged in a circle tell each person to feel his stone carefully without looking at it. Give them a minute or two to do this. Then ask everyone to pass his stone to you. After jumbling them up, cover each stone with your hand and pass it to your right. Tell everyone to try to identify his stone by its feel. Each time a person receives a stone he will feel it to see if it is his. When he thinks his stone has returned to him, he is to let it drop to the ground and continue passing any other stones that pass to him. Do not tell them in advance why they are feeling the stone and emphasize the importance of not looking at the stone.

Creepy Crawler Race

Ask each person to find a small crawling animal (beetles, caterpillars, worms, etc.). With a stick draw a circle in the dirt and mark a spot in the center of the circle. Let someone who has a watch with a second hand be timekeeper. Let each person start his creepy crawler at the center spot and have the timekeeper time how long it takes for each contestant to reach the circle's edge.

Other Ideas

Let each person pick a small spot of earth and gently dig down through the layers of litter and dirt with their fingers. They will see different stages of soil formation and feel the dampness, coolness, and different textures of soil. Have them refill the hole when finished.

If the site includes water, let the students take off their shoes and wade a few minutes, or simply let the running water run over their hands. Try to confine their wading to one spot so they don't disturb large portions of the area.

Let each person try to build a birdnest! Let them select their own materials, find them, then do the construction; or have participants invent an animal with unique adaptations for life at

--school
--your home
--Washington, D.C.
--underground
--in the sky

00018

Scavenger Hunt

The scavenger hunt is great for awakening one's awareness to detail around him. Depending on the size of the group, have the participants divide themselves into groups of 2, 3, or 4 people. Give them about 20 minutes to collect their things. When all the groups have returned, let them share with the others what they found. You may have to elaborate a bit on some of the articles listed, depending on the age and sophistication of the people you are working with. Also, don't be afraid to make up your own list for the hunt or to make changes in this list.

EACH GROUP WILL COLLECT EVIDENCE OF THE FOLLOWING PHENOMENA:

1. A simple machine
2. Three simple shapes
3. A sweet taste and a sour taste in Nature
4. A pleasant and an unpleasant smell in Nature
5. A trace from an animal
6. Three primary colors and two secondary colors
7. Three different textures
8. One sound from Nature
9. An example of nonbiodegradable litter being degraded
10. Something older than you are and something younger
11. A producer, a consumer, and a decomposer

00019

## More Activities for Self-Expression

### Haiku and Cinquain Poetry

Poetry forms or other self-expression activities are used most effectively in the middle or near the end of the STEP program. Ask the participants to write about something they have experienced up to that point ( a sound, a smell, an object, a thought, a feeling, etc. ) Let those who wish to do so share their poetry with the others.
(See the formats for Haiku and Cinquain)

### Group Story

At a spot that particularly sparks the imagination, let the group make up a story. You could start it off, then let each person add something to the story.

### Group Poetry

Group poetry can be done by letting each person write a line or two as part of one whole poem.

### Wishful Thinking

Pick a good spot where everyone can sit or lie down and be quiet for a few moments. Then ask each person, "If you could be anything other than a human being, what would you like to be out here and why?"

### Poetry Forms

Haiku is a three-line verse form which originated in thirteenth century Japan.

#### Characteristics of authentic Haiku

Three lines: Line 1 contains 5 syllables; Line 2 contains 7 syllables; Line 3 contains 5 - 17 syllables in all.
English translations do not always follow this pattern.

--Each poem includes the season, location, reference to nature.

--The subject matter deals with simple ordinary things.

--No rhyme (Japanese words end in vowels or "n" sounds.)

--Few articles or pronouns - syllables can be used for better purpose.

--Thought comes first; then the syllables are adjusted to fit the form.

Here are some examples:

Departing spring
Hesitates
In the late cherry-blossoms

The old pond;
A frog jumps in. --
The sound of the water.

Simply trust:
Do not the petals flutter down
Just like that?

Diamonds in the sky
Upon a velvet drapery
Shimmer in the night

"Word" CINQUAIN

1. _____

2. _____ _____

3. _____ _____ _____

4. _____ _____ _____ _____

5. _____

1. Use one word to name the subject you are writing about.
2. Use two words to describe #1.
3. Use three words about what #1 is doing.
4. Use four words to tell how you feel about #1.
5. Use a word that means the same as #1.

In the strict poetic sense, cinquain poetry (pronounced san (d) cane) has five lines with a certain number of syllables per line--

2
4
6
8
2

instead of a number of words. You might try to get fancy as you go on with poetry.



00021

Sky
Deeply blue
Moving over me
Comforting, holding, strongly forever
Ephemeral

Alligator
Bulging eyes
Smiling, watching, cunning
Controller of his environment
Hungry

Waves
Foamy brown
Crashing into sand
Power unleashed without man
Eternal

Mushrooms
Fungi friends
Busy as beavers
Gives life sweet smell
Recyclers

Participant Suggestions

***Have each person think of the animal they dislike the most. Then have each person write a poem about the animal not mentioning the name of the animal. Have each person act out a charade of the animal and let others guess the name of the animal.

***Using objects found in nature, glue or fasten them together into an animal; or make animals from shells or pipe cleaners.

***Make shadowboxes using plants for the objects in it to create a woodland scene.

***Using paper make texture rubbings to create a picture.

***Have more time for the participants to get to know each other.

***Try some of the blindfold activities in the water.

***Make an oriental-style wall hanging by putting flowers, leaves, grass, etc. between the sheets of waxed paper and pressing them with a hot iron.

***Make a group or individual terrarium using plastic cups.

***Animal naming game (young group). One person names an animal he would know, then the next would name one he knows and also the first person's animal and so on. (Plants also).

***Show Song of Thy Works and then compare to an opposite film, such as Say Goodbye.

***On a clear day - use cloud shapes to look for animals.

***Sensory Activity - using sense of smell. Collect a variety of items from natural surroundings. Allow people to smell them first, then blindfold everyone and see if they can identify them.

***Look for relationships (symbiotic -- parasitic, commensalism).

***Sounds - find them individually and return with them to share.

***Sensual Field Trips - Single file line with everyone blindfolded. Try and guess where you are and where you are going. Feel around and try to guess what kind of area you are in.

***What kind of home would you build in this area. Build a model of it or draw a picture of it.

***All of a sudden you are stranded in an area -- no food, no people. How are you going to meet nature on her terms and survive (shelter, food, clothes, etc.).

***The tree activity. You are part of a tree (roots, leaves, etc.). How do you feel about things?

Participant Comments:

--I've really enjoyed myself today! I can't explain all the things I've learned. To explain is just to be aware of all the wonderful things that are presented here on earth.

--Give equal time to plants!

--I liked the idea of making a home for an imaginary animal. Next time maybe we can find food for our imaginary animal.

--I also had fun on the trust walk. Next time instead of being with the group we came with let's break up and get to know people from other schools.

--I had fun just exploring all the trails. Next time maybe we could make some new trails.

--Play charades and act out something having to do with nature.

--Today has been lots of fun. I not only enjoyed myself but I learned something. I don't think there could have been a nicer place for this workshop to be held. I really loved every minute of it and will never forget this experience.

## WHERE CAN I LEARN ABOUT STEP?

National Park Service
STEP Coordinator, Washington Office
Office of Environmental Interpretation
U.S. Department of the Interior
Washington, D.C. 20240
Tel. (202) 386-6271

National Park Service
STEP Representative - NPS Field Areas
Environmental Education Coordinator
Southeast Region, National Park Service
3401 Whipple Avenue
Atlanta, Georgia 30344
Tel. (404) 526-7652

U.S. National Commission of UNESCO
STEP Representative
STEP
P.O. Box 19321
Washington, D.C. 20240
Tel. (202) 632-2804

C. Richard Tillis
Bureau of Environmental Education
Department of Education
Tallahassee, Florida 32301
Tel. (904) 488-6547

# AFTER THE TRIP ...

K-3 Activities for Anyplace

by

Members of the

Florida Association For Children

Under Six

Including:

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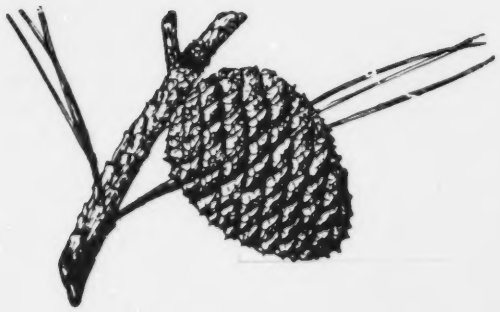
With a little help
from the Project Staff



Similarities and Differences

Goal: Students will increase tneir awareness of the similarities and differences in natural objects.

Objective: To find a natural object and after smelling, looking, feeling, and listening to the object, the learner will verbally describe it to other members of the group.

Activity: Go outside and find an object that appeals to you and describe it.

More:
- Read book, write stories about, and descriptions of what they find.
- Model, sculpture, or draw and paint pictures of what is found.
- Look at n tural objects through magnifying glass and under microscope.
- Act out the movement, appearance, texture, smell and sound of natural objects.

Hints: Questions for Discussion
- Why do you think your natural object is the way it is?
- Does that give it a better chance to live?
- How is your object similar but different from others?
- Have you seen this before?
- Did it look the same then?
- Do you like what you found?

* * * *

Scavenger Hunt

Goal: Children will increase their awareness of different things in their environment.

Objective: Given a list of items found on the school yard, the child will be able to locate and bring back many of those items.



00026

Activity: This activity would work best as a follow-up after a nature walk. Put items on the scavenger hunt list that were discouraged during the nature walk.

Tell the class that they are going on a scavenger hunt. They will be given a list of different items to find and bring back (this works best with small teams). The list could include the following: pine needle, turkey oak leaf, flower, lichen, moss, something ugly, something pretty, something hard, something soft, something alive, something dead, etc.

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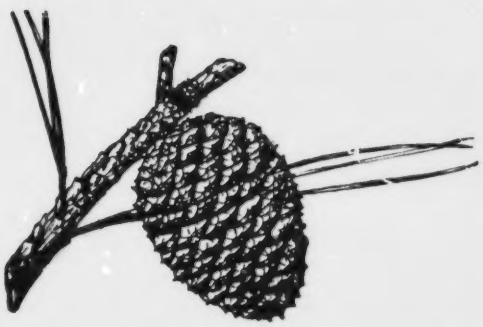
TURKEY OAK
Leaf, one-third natural size. Twig, two-thirds natural size.



Hints: Children will have difficulty in finding the "something living" type items. Discuss kind of things are living, dead, hard, soft, etc.

If children run all over the schoolyard - establish boundaries.

* * * *

Movement Awareness Lesson

Goal: The children will become more aware of their environment and imitate it.

Objective: The children will imitate the three types of movement by imitating objects within their immediate school yard environment.

Activity: The children will go outside and observe different types of movement:

a. active (squirrel)

b. semi-active (tree swaying)

c. non-active (pine cone on the ground)

The children will discuss different types of movement and the similarities and differences.

The children will, under guidance, imitate the movement of the objects chosen.

a. For example: "Act like you are a tree swaying in the breeze: in a storm, in the rain, etc."

After the movement activity a discussion may occur to discuss how they felt as "trees", "squirrels".

Hints: Potential Problems: The children may not be used to being outside of the classroom except at physical education.

The children may need to be taught to be aware of the movement of the environment.

Initiating activities leading into this one can teach these prerequisite skills.

* * * *

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So What If It Rains

Goal: The learner will understand rain and how it affects the environment.

Objective: The learner will be able to discuss how rain helps plants grow.

Activity: Have the children place a bucket or pan anywhere out on the playground to collect and measure rain. What has the rain done to the environment? Encourage the learner to discover some effects of the rain on their environment.

How much water was collected in the pan? Do you see that much water standing on the driveway? Where did it go? Do you see that much water standing in the grass? Where did it go? Provide a small shovel or let children dig into the soil and feel if the soil is damp or dry. This will lead into a discussion for another lesson on how water is soaked up through the root system.

* * * *

Plants and Food

Goal: To understand that plants are dependent on their root systems for nourishment.

Objective: To see how plants receive their food.

Activity: Go outside and find several kinds of plants. Take a single herbacous plant out of the ground and examine the root system. Help the children figure out how the plant absorbs food.



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More: Put a stalk of celery in a glass of water. Add a few drops of red food coloring - in a few hours the stem and leaves will have a reddish color. Cut a cross section of the stem and examine the transport system.

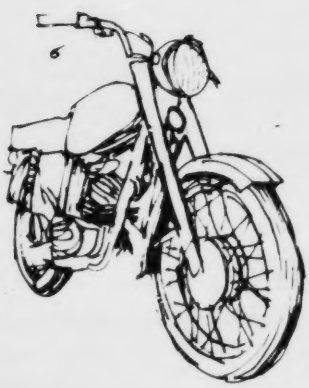
* * * *

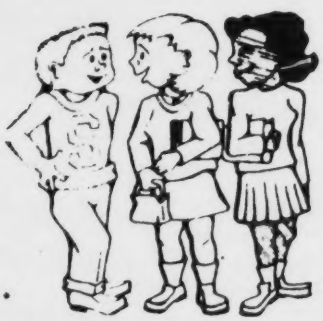
Environmental Sound

Goal: To create an awareness of the sounds in the environment.

Objective: To list several natural and man-made sounds during a five minute period.

Activity: Take the children outside and have them sit so they can hear and see the teacher. Briefly explain about environmental sounds. Then let the children find a place where they can sit alone and listen. Have the children record in writing the different sounds that they hear (birds, airplane, people talking). When they have finished (five minutes) discuss the sounds that they heard and place the sounds into different categories such as animal sounds, human sounds, and sounds made by machine, etc.





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More: What sounds did you hear?

animal

natural

human

machine

Did you hear any sounds that were far away? near? What were they?

Did you hear any sounds that were soft? loud? What were they?

What sound did you like? dislike?

Have the children write phonetically the sounds they heard.

When do sounds become noise?

Pick a favorite sound and imitate it, have everyone join in an environmental chorus!

* * * *

Plant Varieties

Goal: To become aware of the variety of plants.

Objective: To demonstrate knowledge of plants by finding at least four different kinds of leaves.

Activity: Introduce the activity with a short general discussion about the kinds of plants the children know about. Possibly referring to a previous "nature walk."

Allow the children to go outside and find at least 3 different kinds of leaves. "Can you go outside and find leaves from 3 different plants?" Compare the leaves. How many different kinds did they find? Which one is most predominant? Mount the leaves and label them.

Let each child tell where he found the leaf.

More: - Was the plant a grass, bush or tree?

- What kinds of plants grow in what kind of soil?
- How do plants depend on each other?
- How do animals depend on plants?

* * * *

Environmental Variety

Goal: To introduce the idea of similarities and differences in the environment.

Objective: To discover variety in the environment.

Activity: Review similarities and differences with the students then "Go outside with this _____ and find another one like it." Give children a leaf, or seed, or twig or rock or .... and challenge them to find another like it. When the students reassemble, have them explain how the objects they found are similar and different from the original.

- Why is variety important?
- What would it be like if everything was the same?
- Are you happy with this variety?
- How are people all similar but different?

* * * *

Let's Go On A Treasure Hunt

Goal: To help students become aware of "things" in the environment by having them find out as much as they can about an object they choose.

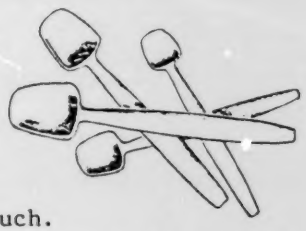
Objective: To have students learn about something that interests them.

Activity: Go outside and find something in the environment and find out as much as you can about it.

- Have a sharing time where each person reports back to the group his findings.
- Have an open discussion after each report.
- After the reports, have the group decide if they would like to do more research. Encourage them to continue.

Hints: 1. Some pupils may not find anything that they want to know more about. Solution: Walk around with the child and ask him to tell you about some of the things seen.

2. You may not know anything about what the pupil has found. Solution: Work together and find out!

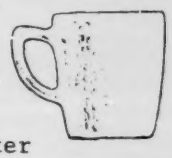


* * * *

Sand

Goal: Children will develop an appreciation of the sense of touch.

Objective: Given containers of sand and manipulative implements (spoons, small cups, straws) the children will explore its properties.



Activity: Bring the children to a sandy place and challenge them to discover all they can about the properties of sand. Have water available so some of the sand can be moistened.

More:
- Let the children make comparative explorations by presenting them with wet sand and dry sand.
- Let the children continue in tactile explorations by giving them other substances to explore - playdough, cornstarch, jello, rice, etc.
- See what the kids come up with and plan accordingly. (Keep a record of which children do what.)



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Hints: 1. Kids not interested in the activity.

Solution: Fine. Let them have the choice of refusing to play, but continue to make wet sand available as an "option" during other days.

2. Children throw sand.

Solution: Remind them the only ways in which they may use the sand. If they continue to throw sand, remove that child from the activity (but give him another chance another day).

* * * *

Seasonal Changes

Goal: To increase sensitivity to seasonal changes in the environment.

Objective: Children will develop an awareness of seasonal changes that occur in their environment.

Activity: Take the children outside. Have them feel, touch and smell things. Have them listen for new sounds. After spending enough time outside for them to have been able to notice several things, bring them inside and discuss what was observed. Make a chart of what you discuss. (This could be in the form of an experience chart.) Have the children work on a seasonal mural showing seasonal changes in the environment.

More: - How are the trees changing?

- Is there a difference in the animal activity?
- What changes in color do you see?
- Are there different smells?
- What sounds do you hear? Were there more sounds last time? less?
- Are some plants dying? growing?
- Is there a difference in the kinds of insects you see?
- What other changes can you observe?

* * * *



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Interdependence

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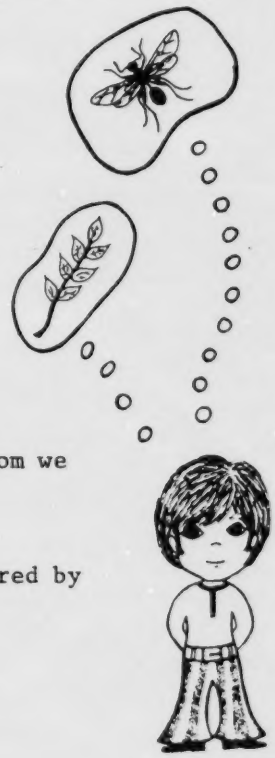
Goal: To create an appreciation for interdependence of living and non-living things.

Objective: To discover four living and four non-living things and explore possible links.

Activity: Challenge small teams of students to find examples of living things depending on non-living things (ex. soil and plants). Bring the teams together and have them share their discoveries.

Ask:

- What do plants need to grow?
- What do animals need to live?
- What do you need to live?
- Who in your community do you depend on?
- What do the plants depend on?
- Do you need plants to live?



More: Make a chart showing the people in the community upon whom we depend.

Make another chart showing the interdependencies discovered by the students.

* * * *

Awareness

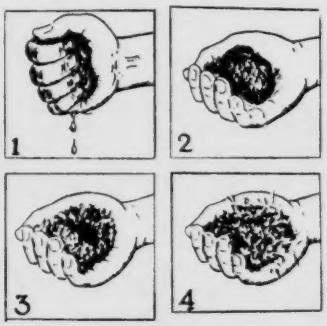
Goal: To increase awareness of the variety of textures found in the environment.

Objective: To increase the use of the sense of touch during environmental exploration.

Activity: Encourage children to explore the environment by feeling the textures around them. Ask them to find a favorite texture. Why does that one appeal to you? Discuss how your object feels with a partner until he can guess what that object is!

More: Collect a number of objects and blindfold part of the class. Pass the objects from person to person and see how many can be correctly identified.

Lead a field trip with all the participants blindfolded. Challenge them to listen and feel to discover where they are, what they see.

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Goal: To develop an awareness of the many facets of nature.

Objective: Given certain boundaries within the school playground, the child will demonstrate awareness by "finding something and sharing it with the class."

Activity: Take children outside. Set boundaries as to where they can and cannot go. Have each child run to a point. Tell them they must run to the point, find "something", and bring it back.

Hints: If the children are not accustomed to outside learning experiences, take them out before the activity. Be sure to give the children a purpose when taking them outside.

# Exploring the Wonder of Trees

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Especially designed for intermediate grade children at Blessed Sacrament School by

Alice Harris
Joyce Howard
Pat Parrish
Sister Sylvia Raftery
Ruth Rutledge
Gay Woodson

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### To the Teacher

The booklet is organized into three main parts: pre-activities, Junior Museum activities, and post-field trip activities. You may think of other activities you'd like to add in each section. It is important for you and the students to decide what they're going to do before you go to the Museum. You may want each child to do several general activities and at least one activity at each station. Some activities require equipment that you will need to take with you.

### To the Student

This booklet is full of ideas to help you learn more about trees. You probably won't be able to do them all, so you will need to choose wisely. You will learn more if you do a few projects well. Your teacher most likely will assign some activities to you and let you choose some others. If you would like to do a project that is not listed in the book, that's fine. Write it out or discuss it with your teacher first. We hope you have fun as you explore the trees around you.



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## Activities to Prepare You for a More Profitable Learning Experience on Your Field Trips to the Junior Museum.

1. Make this a family learning experience. Learn to recognize a tree in your own home yard. Record features about its leaves, seed, flower, bud, soil, color and texture of bark, height and the circumference of trunk. Try to find one like it at school and compare it with your tree at home. Do they look exactly alike? If not, how are they different?

2. If you know the age of a tree in your own home yard try to calculate the age of a similar tree at school. How do foresters calculate the age of living trees? If you don't know ask people until you find out.

3. Tree Description Game

   Day One

   Each person will go out in the school yard and find a tree (one or two people to a tree, if possible). When you find "your" tree describe it so someone else will be able to identify it. You might include a description of the leaves, bark, etc. You decide how to do it, but remember at another time someone else will try to find "your" tree from the description you have written. After you have written your description, hand it in.

   Day Two

   The tree descriptions will be handed out to everyone in the class. It is now your job to look at the description on the piece of paper you have and try to find the tree. Take 10 minutes to do this.

   Rules

   1. Don't tell where your tree is in your description.

   To the Teacher: After the students search for the mystery tree, find a nice tree to sit under and discuss problems they had. Try to have students generate solutions to the problems. What do they need to know to identify a tree? Discuss the need for common terms so everyone can communicate.

   A good follow-up activity is the scavenger hunt described in #4. Do the activity over again after the children become aware of the scavenger hunt vocabulary.

4. Leaf Features Scavenger Hunt

   On pages 5 and 6 of this booklet you will find drawings of many leaf features. Some of the terms you will use when you identify trees at the Museum.



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Divide the class into 4-person teams. After you're organized everyone will scatter at the same time to search for leaves with the following characteristics. You or your teacher may wish to make up your own list.

Scavenger Hunt List

1. compound leaf
2. simple leaf
3. opposite leaves
4. alternate leaves
5. pinnate venation
6. entire margin
7. ovate shape
8. elliptical shape
9. serrate margin
10. lobed margin

Important Rules

1. You can use one leaf for more than one item on the list.

2. Don't pick any more leaves than necessary. If you can get a leaf from the ground, do so.

3. The team that finds all the items first wins. If no team gets all items, then the team that has the most in 15 minutes is the winner.

---

To the Teacher: Do not make the students memorize the words. The idea is to make them aware of the vocabulary, so they can use the leaf identification features information if they need it.

5. Observe a tree on the school grounds. Observe for a few months, go out about once a week and observe leaves, buds, seeds, flowers, bark, soil, and record. Enjoy the trees' growth cycle.

6. Measure you finger tip to finger tip length. Record. You can use this information to measure the circumference of a tree.

7. Choose some movies you want to see from the list at the back of this booklet.



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# IDENTIFICATION FEATURES of LEAVES

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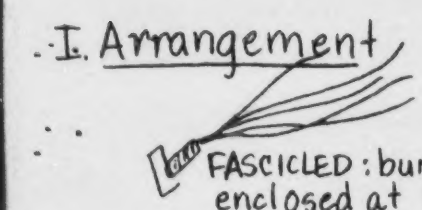
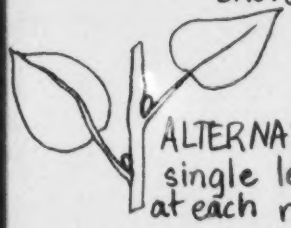
## I. Arrangement

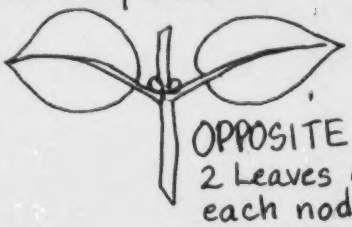


FASCICLED: bundles of 2 to 5 enclosed at base by sheath

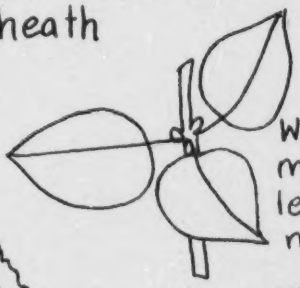
CLUSTERED: bundles without sheath



ALTERNATE: single leaf at each node

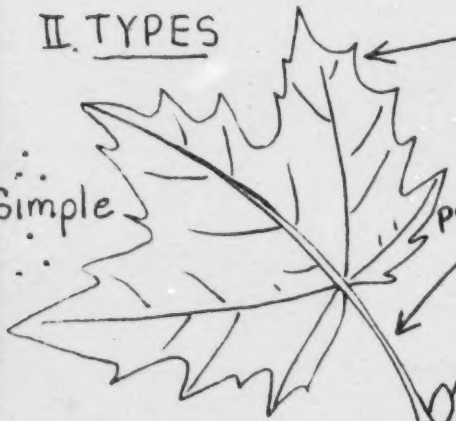


OPPOSITE: 2 Leaves at each node



WHORLED: more than 2 leaves at each node.

## II. TYPES



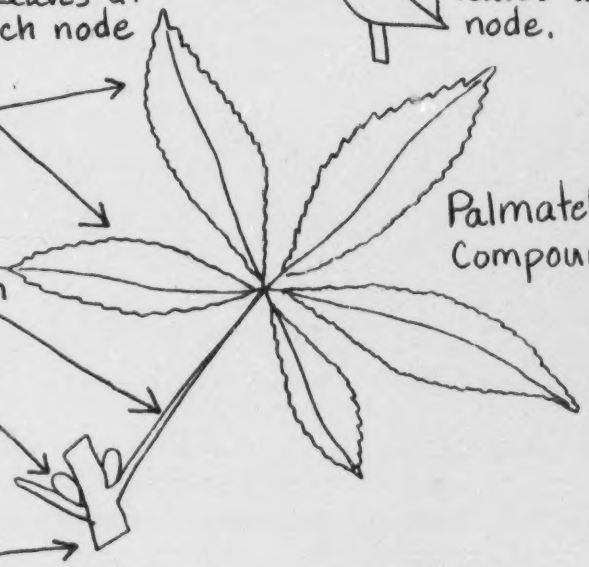
Simple

blade

petiole, or stem

bud

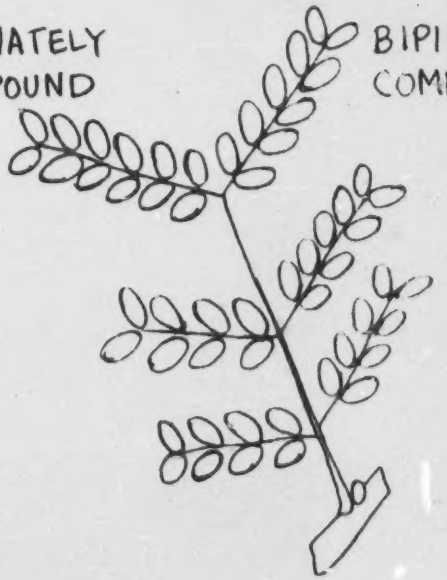
twig



Palmately Compound

ODD-PINNATELY COMPOUND

EVEN-PINNATELY COMPOUND



BIPINNATELY COMPOUND



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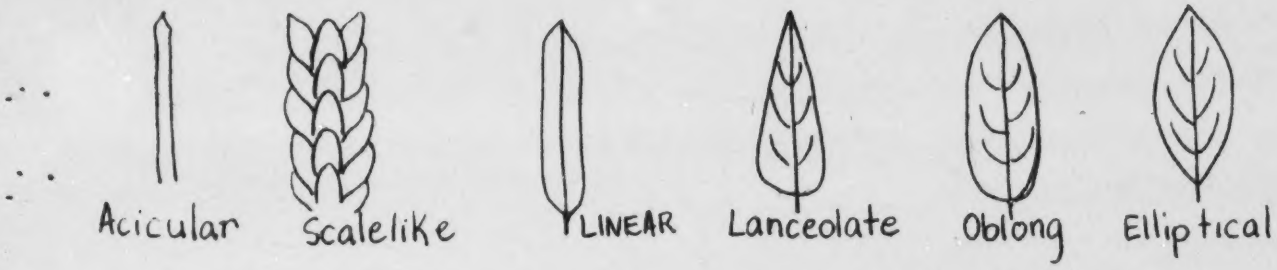
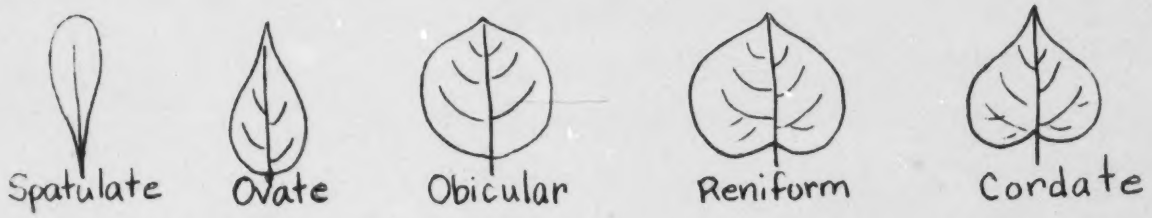
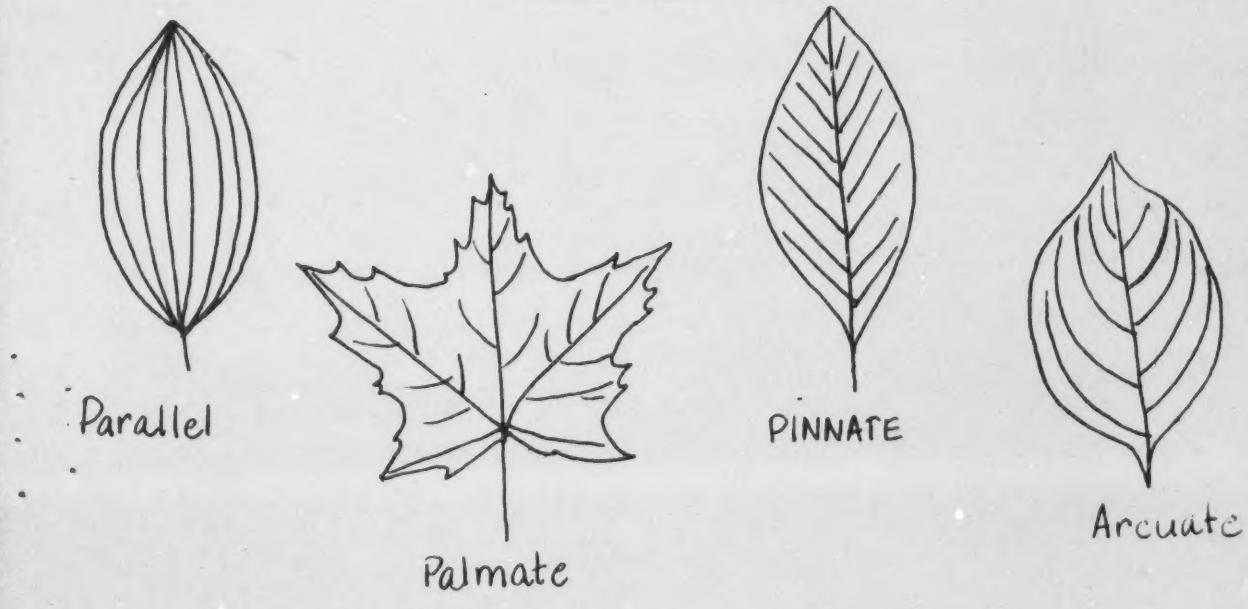
## III SHAPES




## IV MARGINS

## V. Venation



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General Activities: You can do these activities at various places at the Museum. You decide on the appropriate location(s) for each activity. For best results, read over these activities before you go to the Junior Museum. You can choose the activities you plan to do and then gather any materials you will need. There are many more activities than you can do. Choose only a few so you can really enjoy doing them and so you can also do a thorough job of each one.

1. Some people think you can find North by seeing where the green moss is growing. Does moss really grow only on the North side of trees? Find evidence to prove or disprove your hypothesis.

2. Take a mushroom back to school and examine it with a hand lens or microscope. Can you grow some new mushrooms from this one?

3. Gather some seeds and try to grow them.

4. See how many different kinds of ferns you can find. Where are they growing? Are they more common near certain kinds of trees? How do they reproduce?

5. Can Spanish Moss live if its not hanging on a tree? What kinds of trees does Spanish Moss live on? Does the Spanish Moss get anything from the tree? Does it give anything to the tree?

6. Find trees of as many different colors as you can. You may want to find out how to make a natural dye using tree leaves, bark, or roots.

7. Take photos or sketch the trees you identify. If you have a really good picture, see if the newspaper will print it. Maybe they'll do a feature article on your activities at the Junior Museum.

8. Find evidence that a tree changes.

9. Make pictures of animals that live in and on a tree.

10. Choose your favorite tree. Write a story or poem about the life of your tree.

11. Activities for lichen and Spanish Moss:

    a. Keep a count of the different kinds of lichen you discover on the nature trail.
    b. Note where it is growing--on a log? a live tree? sandy soil? rocky soil? branches of trees?
    c. Where and in what kind of tree do you find Spanish Moss?

12. Make leaf prints of some trees you find at the Junior Museum. You might want to make a booklet of prints and give it to a special friend. Here are three methods for making prints. You might want to try all three and decide which kind you like best. See if you can invent another way.

    Watercolor Prints

    Smear watercolor paint on the bottom side of the leaf using your fingers. Then, on the sheet of paper press the leaf down, being careful not to

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smear it. Rub your fingers carefully on the leaf surface. Then lift the leaf off the paper and you have a beautiful leaf print!

Crayon Prints

This activity using crayons is very easy to do. Place the leaf under a sheet of paper. (You must be on a hard, flat and dry surface.) Then, with the sharp point of the crayon, color briskly over the leaf area and the image of the leaf will soon appear!

Spatter Prints

Materials: screen box, tempera paints, toothbrush, paper, leaves, pins

Pin the leaf to a piece of colored construction paper. Place the screen box over the paper. Dip the toothbrush in the paint and rub briskly over the screen. The paint should spatter nicely over the leaf and paper. When finished, remove the box, pins, and leaf. Presto! A leaf print!

To make a screen box: Cut out the top and bottom of a cigar box. On one opening firmly tack a fine piece of screening.

13. Make texture prints of the bark of various trees. Can you recognize trees by their bark?

## Activities for Stations Along the Nature Trail

There are numbered posts along the Nature Trail at the Junior Museum. The activities in this section are all keyed to certain numbered posts. Each post number will be called a station. For example, Station 1 is at or near post 1. Activities are not available for all the stations, so be sure you are at the correct station before you begin an activity.

At each station you will need to identify a tree. You can use the identification information section (pages 14 - 19) of this booklet to help you.

Station Number 1-2 Longleaf Pine Activities

1. Find a Longleaf Pine tree.

2. Locate other varieties of pine trees in the area. Compare the needles of the longleaf pine to needles of another pine tree. Observe differences in length, color, amount of needles in cluster. Are the needles rigid or flexible?

3. Find a cone from the longleaf pine and one from another variety of pine. Compare the size and shape. Are there spines on the tips of the scales?

4. Discuss the uses of the resin from pine trees. Name some products you might find in your home that are made from pine resin.

Station Number 2-3 Oak Activities

1. There is a large clump of trees to the left. See how many different kinds of oaks you can find. Try to identify them. Learn how to recognize the Live Oak Tree.

2. Make leaf prints of at least 3 kinds of oak trees you have identified. On this same paper beneath each leaf write your own description of the leaves telling:

   a. name of the tree
   b. color on top and bottom of leaf
   c. length and width of leaf in centimeters (use a ruler)
   d. texture of the leaf on its top and bottom surface (rough? smooth? hairy? bumpy?)
   e. edge of leaf - jagged, smooth, curled?
   f. shape of the entire tree?
      Cone △ ? Oval ○ ? Umbrella ⌓ ?
   g. Describe the bark: color? texture?
   h. Estimate the height of the trees. (Use your height as a standard of measure.) Which tree is tallest?
   i. description of the surrounding environment: What kind of soil is the tree growing in? What other plants or trees are around? Is it close to or in water? Is the area swampy or dry?
   j. Compare your notes with information in identification section in booklet.

3. Tree Measurement: Estimating the height of the Live Oak Tree. Look at the tree and guess its height. Then try to check your guess by using the following method. It would be difficult to measure most trees with a ruler, but there is a very simple way you can estimate, or guess, the height of a tree. Your pencil or pen can be a handy tool to help you. Follow the simple directions below.

   1. Ask you friend to stand next to the tree. Find out what his or her height is.
   2. Walk back some distance from the tree. Stretch your arm out straight. Hold a pencil up in line with the tree. Mark your friend's height on your pencil with another pencil or with your thumb.
   3. Now, look at your pencil. Find the mark you placed on your pencil of your friend's height. Now see how many times that short amount can be found on the height of the tree. Multiply your friend's height by the number of times you moved the pencil up the tree. This number will give you the height of the tree.
   4. Use the picture at the top of the next page to answer this question: If the person standing next to the chimney is 4 feet tall, what is the height of the chimney?

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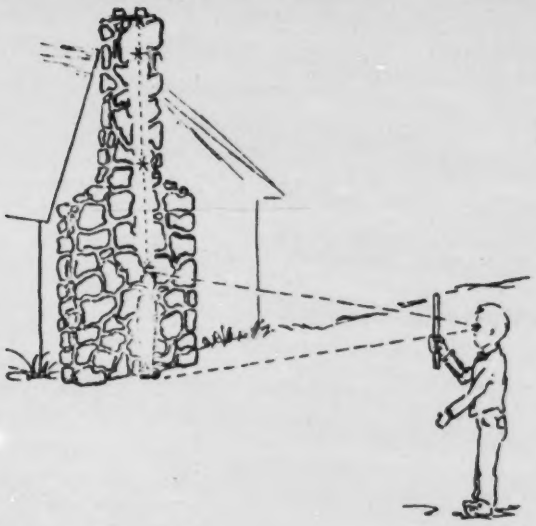
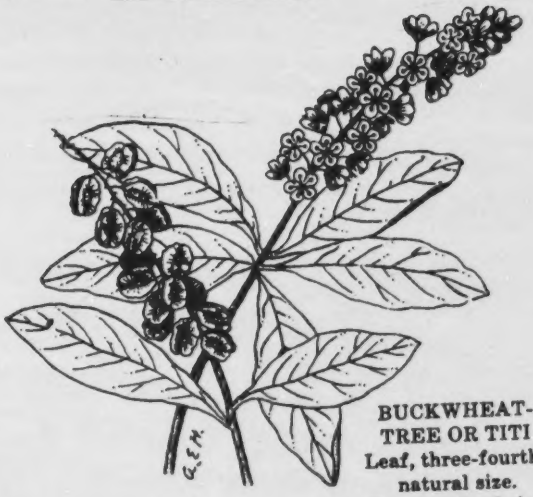


Station 9 Titi (tī tī) Tree Activities



BUCKWHEAT-TREE OR TITI
Leaf, three-fourths natural size.
Fruit, natural size.

1. Look carefully at the titi tree trunk and its branches. Describe any insects crawling on it.

2. Are there any bird nests in the tree? If so, can you guess what kind of bird has made its home there?

3. Is the titi tree located near a body of water? If so, what kind of water is it located near? Lake, River, Ocean, Swamp?

4. What do you think would happen to the land if there were no trees near the water areas?

5. Some trees keep their leaves and remain green all year long. These trees are called evergreens. Do you think the titi is an evergreen? Find out. Describe the leaves now. How do you think they would look one month from now? 6 months? 1 year?



00046

6. The titi flowers generally appear during February or March.

   a. Are there any flowers on the tree now?
   b. If so, what color are they?
   c. Do they have a scent?
   d. What famous North Florida product is associated with titi?

7. Describe the color of the titi bark. Is it different from other trees around?

Station 14 Activities for the Large Tree

1. Identify the tree.

2. Measure the circumference. Calculate its age using the following data:

| Circumference (feet) at 4 1/2 feet above the ground | Age of Tree in Years |
|---|---|
| 6 | 50 |
| 9 | 75 |
| 13 | 100 |
| 16 | 125 |
| 19 | 150 |
| 22 | 175 |

63 Live Oak Trees in Leon County have been identified as over 150 years old. Is this tree over 150 years old?



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Station 17-18 Mossy Log and Bald Cypress Activities

1. Locate the mossy log near post 17. Is it dead or alive? Can you find the tree it came from?

2. Draw as many different plants growing on the log as you can. Later, check a reference book in your school library to find out which are mosses, lichens, or other plants. What color are these plants?

3. Can you find evidence that animals have been at work on the log? Describe what you see. What kinds of animals made each kind of mark?

4. Find other nearby trees with plants (mosses or lichens) growing on them. Do you see any different kinds than the ones you saw on the log?

5. What seems to be happening to the log? Does it serve any purpose? You may want to check a reference book later to see if you are correct.

6. Locate the bald cypress. Describe the location of these trees.

7. Look for other trees growing near the cypress. Describe the trunks of these trees. Are they like the cypress? How? How are they different?

8. Find a cypress "knee." It is a root section which sticks up out of the water. Later, check a reference book to find out the purpose of these knees.

9. Notice the leaves of the tree. Can you tell if it is deciduous or evergreen just by looking at it? Why or why not?

10. Observe the trunks of four different cypress trees. Compare the size of the trunk at the water level to the size of the trunk five feet above water. Does a tree with a bigger trunk at the water level have a larger trunk higher up than one with a smaller trunk at water level?

11. Find the dead cypress by the bridge. What purpose is it serving now, if any?

12. Use a weighted string to measure the depth of the water from the bridge closest to a cypress tree. Drop the weighted string into the water until it touches bottom; pull it out and measure the wet part. You can use your finger tip to finger tip length to measure the string.

13. Look at trees on the bank of the swamp. Do you think any of these were once in the water? Why or why not?

14. Do any of the cypress trees have Spanish moss?

Station 23 to 25 Sweet Leaf and Magnolia Activities

1. Find a Sweet Leaf Tree and a Magnolia Tree.

2. Choose one tree and watch it for 15 minutes. Record what the tree does and what happens to the tree.

3. Use a trowel or spoon and dig up a small soil sample under a Magnolia tree. Put it in a can or baggie if you want to save it. What does the soil look like? Does it have sand in it? What color is it? What is living in the soil? How does it feel? How warm is it? Is it damp? Now do the same thing with soil from under a Sweet Leaf. How do the soils compare? Choose another tree you have identified and take a soil sample by it. Is the soil the same as it was by the Magnolia and Sweet Leaf? If not, how is it different?

You may want to record your data in a chart similar to this one:

| | Temp. | Moist. | Text. | Sand? | Color | Ingredients | Organisms, etc. |
|---|---|---|---|---|---|---|---|
| 1. Magnolia | | | | | | | |
| 2. Sweet Leaf | | | | | | | |
| 3. | | | | | | | |

4. What kind of habitat do the Sweet Leaf and Magnolia live in?

"habitat" = place where a thing is commonly found, natural surroundings of a plant or animal.

How do the habitats of the Magnolia and Sweet Leaf compare with the Longleaf Pine at station 1-2? Do you think all Magnolias live in the same kind of habitat? What would you need to do to find out?
You may want to search throughout the Junior Museum property for Magnolias (or another tree of your choice). Each time you find one, put a mark on the map and jot down a description of the habitat.

Station 29 Sweetgum Tree Activities

1. Find a Sweetgum Tree.

2. Sweetgum trees grow best in rich bottomland. Compare the soil at the base of the sweetgum tree with the soil at the base of another tree (perhaps a pine tree), located in another area. Look for differences in texture, color, amount of rock or sand, water content, etc.

3. Find the fruit of the sweetgum tree. It can be dipped in watercolor paints and "tracks" made on paper. They also can be spray-painted gold or silver to be used for ornaments on Christmas trees or wreaths, or used as accents in flower arrangements. Try to create something using the sweetgum balls.

AMERICAN SWEETGUM
Leaf, one-third natural size.
Twig, two-thirds natural size.

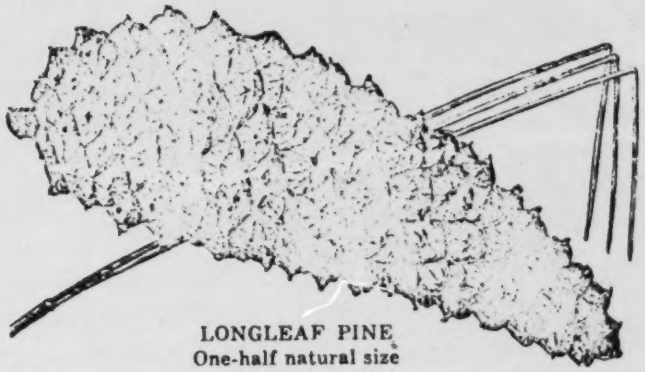


00049

4. Look for fungi in the area. Determine if the fungus is feeding on living plants (parasitic) or feeding on dead or decaying plants (saprophytic). Describe the color, shape and texture of fungi you locate.

## Tree Identification Information

The tree information is arranged in the order you will need it as you travel around the Nature Trail. You may also want to get other tree identification books to take with you to the Junior Museum.



LONGLEAF PINE
One-half natural size

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### The Longleaf Pine Tree

The longleaf pine is named for its long, drooping, bright-green needles. The needles are 8 to 18 inches long in clusters of 3 and sometimes 5. The cone is the largest of the southern pines, being 6 to 10 inches long. The cone scales are tipped with spines. The mature tree is commonly 100 to 120 feet in height, with a trunk diameter of 2 to 2 1/2 feet. It has a tall, straight trunk, with thick bark of orange-brown or reddish brown. Timber from the longleaf pine has been used in the construction of ships, railroad boxcars and bridges. The longleaf pine is commonly used for the commercial production of naval stores. Naval stores is the term used for the resin, turpentine, pitch and tar products obtained from the pine and other resinous trees.

One way you can determine if a longleaf pine is a healthy tree is to check the pine needle for scales. Scales are about 1/8 inch in length, elongated in shape and white in color. They stand out in sharp contrast to the green needles. Feeding by this insect will cause discoloration of the needles and can cause the death of some twigs and branches.

Live Oak

The Live Oak is found in all of Florida except the Keys. It sometimes grows to 100 feet in spread with a short stout trunk, 3 to 4 feet in diameter, dividing into several large limbs with nearly horizontal branches, forming a low dense, round-topped head. Its height is commonly from 40 to 50 feet. The bark on the trunk and large branches is dark brown tinged with red. It grows to largest size on rich hammocks and low ridges near the coast only a few feet above water level. In very sandy soil it is a tall shrub.

The leaves are simple, evergreen, thick and leathery, oblong, smooth above, pale and silvery white beneath, and edges slightly rolled under; from 1 to 2 inches in width and 2 to 4 inches in length.

The fruit is an oblong and dark brown acorn.

LIVE OAK
Two-thirds natural size.

POST OAK
One-third natural size.

Post Oak

The Post Oak is common in northern Florida often in dry woods and on poorer soils. It generally grows to be a medium sized tree reaching a height of 50-80 feet and a diameter of 1-2 feet. The bark is rough and dark and broken into small scales. The young twigs and leaves are coated with a thick light - colored fuzz. The leaves are usually 5-8 inches long and nearly as broad, deeply 5 lobed, the lobes broadest at the ends. They are thick and sometimes leathery, dark green and rough on the upper surface, lighter green and rough hairy beneath. The acorn is oval 1/2-1 inches long. The wood is used for fence posts and furniture.

Laurel Oak

The Laurel Oak is generally found on the banks of streams and in or near swamps and rich hammocks. It reaches a height of over 100 feet and a diameter of 3-4 feet. The bark of young trees is scaley and brown tinged with red. Older trees have black bark broken into broad flat ridges. The leaves are from 2-6 inches long and 3/4 to over 1 inch wide. The leaves are thin and very shiny above, lighter green and less glossy below. There is no fuzz on the underside of the leaves. They fall during the early part of spring. The acorn is dark brown and about 1/2 inch long.

LAUREL OAK
Leaf, two-thirds natural size.
Twig, three-fourths natural size.



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Willow Oak

The willow oak is named for its willow-like leaves which are deciduous. They are 2 to 5 inches long, narrow, smooth-edged, and tipped with bristle points. They are shiny and smooth, light green above, but dull usually and smooth below; alternate in arrangement on the twig. The bark is smooth and of a reddish brown color. The willow oak is a tree of the lowlands and along borders of rivers and swamps, but sometimes also on rich sandy uplands.

WILLOW OAK
Twig, one-half natural size.
Leaf, one-third natural size.

Water Oak

WATER OAK
Leaf, one-third natural size.
Twig, one-half natural size.

The water oak is found in sandy soils, along the borders of swamps and streams, and on bottomlands over northern and central Florida. When fully grown it reaches a height of about 95 feet with a trunk diameter from 1 to 3 feet. The bark is smooth, light brown tinged with red, and has many smooth thin scales over the surface. The leaves are simple, varying in shape on the same tree though mostly oblong, broader near the point, and narrower at the base. They are usually three-lobed at outer end, thin, and of dull bluish-green color, paler below than above; mostly smooth, and usually 2 to 3 inches long and 1 to 2 inches wide. The leaves remain green but gradually fall from tree during winter.

The acorn is light brown and smaller than the live oak.

Buckwheat Tree or Titi Tree

The titi tree usually grows in wet, swampy areas. It usually grows to about 25 feet but can reach nearly 40 feet. The trunk is small and crooked and the bark is a reddish-brown color. It produces an extremely high quality honey.

The leaves are 1 1/2-2 inches long and 1/2 - 1 inch wide. They are bright green in color, shiny above and paler beneath. The trees shed their leaves in the autumn.

The titi flowers are fragrant, small, and found in clusters at the end of the branches. They appear in February and March and are white or rose colored.

The fruit is 1/4" long, and divided into 3 or 4 parts, each part including a light brown seed.

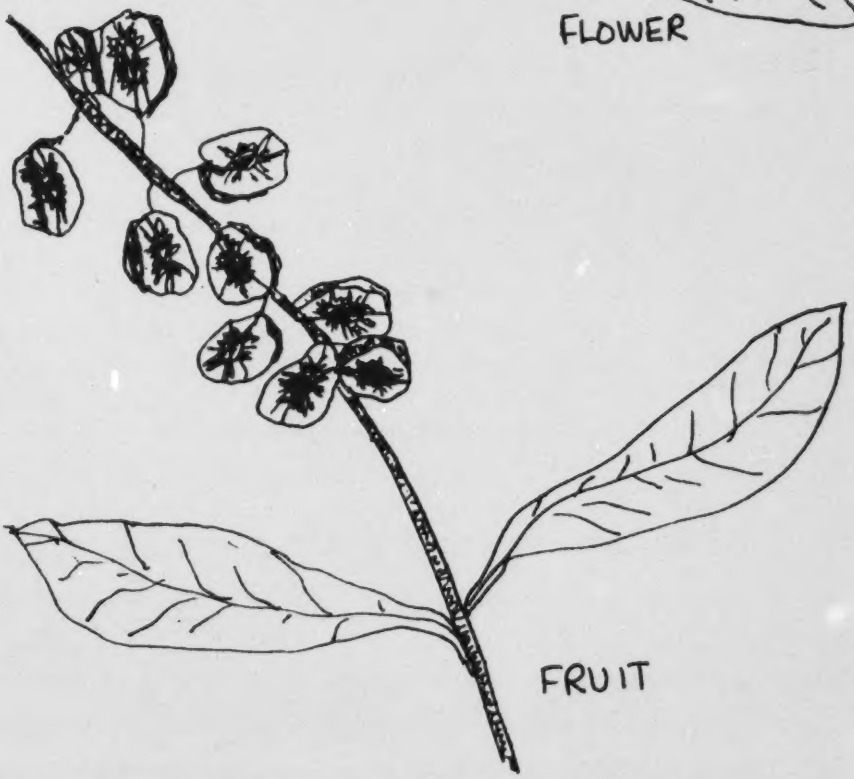
The wood is heavy, but weak and brittle.



00052

# BUCKWHEAT TREE or TITI

FLOWER



FRUIT



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SPRUCE PINE
Two-thirds natural size

## Spruce Pine

The Spruce Pine grows to a height of 80-100 feet tall and to over 3 feet in diameter. It has dark, almost smooth bark. The needle leaves occur in clusters of 2 and are soft, slender, dark green and mostly from 2 to 3 inches long. The cones are single or in clusters of two to three on short, stout stalks. The cones are 1 to 2 inches long and reddish brown. The bark on young trees is smooth and pale gray getting darker with age.

## Bald Cypress

The bald cypress is found in swamps or on wet stream banks. The silvery to cinnamon-red bark is split into vertical plates. The trunk is straight with a few heavy branches and many smaller branches at the top. The leaves, about 1/2 to 3/4 inches long, are arranged like feathers along the twigs. These twigs, with leaves still attached, fall from the tree in the fall. The trunk increases in size where it rests in water; knobby roots called "knees" are sometimes seen close to the trunk, rising from the water. The fruit is a knobby one-inch ball.

COMMON BALDCYPRESS
One-half natural size

SWEET LEAF or HORSE SUGAR

## Sweet Leaf or Horse Sugar

The Sweet Leaf grows as a shrub or small tree to approximately 20 feet. Leaves are simple, alternate and ovate in shape, mostly 3-5 inches long, 1-2 inches wide. The margins are generally entire (smooth). Yellow flowers appear between March and May and the green cherry-like drupe fruit in August or September.

## Southern Magnolia

The Southern Magnolia grows to heights of 60 to 80 feet in rich forest soils, near swamps and ponds. The bark is gray to light brown and the leaves are evergreen, thick, leathery, dark, (alternate, oval or eliptic). They are around 5 inches long with margins entire (smooth). Large white flowers appear in summer.

SOUTHERN MAGNOLIA
Leaf, one-fourth natural size.
Twig, one-half natural size.

AMERICAN SWEETGUM
Leaf, one-third natural size.
Twig, two-thirds natural size.

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The Sweetgum Tree

The sweetgum is a tall, stately tree with a straight trunk. It reaches heights of 120 feet and its trunk can measure 4 to 4 1/2 feet in diameter. The sweetgum has easily recognized star shaped leaves made up of 5 deeply separated pointed lobes. Leaves have long stems, are broad, and are 5 to 7 inches long. The leaves turn deep red in the autumn. The sweetgum is so named because it produces a gummy compound called storax that is used in making perfumes and adhesives. Its wood is classified as moderately hard and is used for plywood and veneer and interior parts of furniture.

The round, burr-like, spiny fruit of the sweetgum remains on the tree throughout the winter. The fruit can be collected and used for handicrafts and artwork.

## Post-field Trip Activities

1. How Many Trees Does Recycling Save?

   Action: Collect newspapers for 1 week.
   Weigh the papers used by one family per week.
   Figure out how many tons of paper are used by your whole class for one year.
   Note: 2200 pounds equals one ton.
   Figure out how many trees are used up to make the newspapers for your class for one year.
   Note: It takes 17 trees to make one ton of newsprint.

   More: Discuss some possible harmful effects of removing trees, the possibility of using recycled paper to save trees, conserving paper in school to save trees, etc.

   Find out how many grocery bags are used by a local grocery.
   How much do they weigh? per day? per year?
   How many trees could be saved in one year if the store didn't provide paper bags? How would you get your groceries home if you didn't have paper bags?

   Examine one bag of groceries that your family has bought. Is there any unnecessary paper used in packaging the food? What can you do about it? How would you suggest the manufacturer package the product?



00055

2. Leaf Snatch Game

This game requires finding various types of leaves, common to the tree trail and then using them. It will promote quick recognition of all the trees through leaf identification.

While on the tree trail at the Junior Museum collect (from the ground) all sorts of leaves common to the area. Be sure to collect some of the ones you have learned to identify. Put the leaves in a large flat box. Upon returning to the school, the boys and girls form two teams each team facing the box of leaves that is about ten to fifteen feet away. The teacher will call out a leaf name and one person from each team will rush to the box and try to find that leaf. For example, the teacher calls out "a Spruce Pine." The first player on each team must dash to the box, find a Spruce Pine leaf, and return to his team, going to the foot of the line.

Players #2 then advance to first place. At the signal they each dash to the box. This goes on until each youngster has had his turn.

The first one back in each dash wins a point for his team, if he has the correct leaf. Anyone with the wrong variety loses a point for his team.

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## Movies Available at Leon County Media Center

405 American Wilderness. 2 parts, 53 minutes, color, jh - sh

1323 The Marsh Community: Plant and Animal Relationship. 11 minutes, color, elem - jh

1403 Tropical Jungle. 15 minutes, color, elem - sh

911 The Coniferous Forest Biome. 16 minutes, color, sh

1116 Discovering the Forest. 11 minutes, color, int

46 Common Animals of the Woods. 11 minutes, b/w, elem

487 Forest Babies. 12 minutes, color, elem

733 Learning About Leaves. 11 minutes, color, int

574 Learning About Seeds. 11 minutes, color, primary

114 Frowlers of the Everglades. Walt Disney, 32 minutes, color, elem - sh

490 Treasures of the Earth. 11 minutes, b/w, int

1171 Problems of Conservation: Forest and Range. 14 minutes, color, jh - sh

346 Conservation and Our Forests. 15 minutes, color, elem - sh

2086 Florida Modern Forest. 20 minutes, color, elem - sh



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# SPECIAL LEARNING FOR SPECIAL PEOPLE

Suggestions for environmental lessons for the physically handicapped and mentally handicapped.

Developed by:

Brad Barnes
Laurie Burkman
Susan Dreschler
Janice Charbneau

with a little help from

Jean Keeler
JoAnne Webb, U.S. Forest Service

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## Purpose of the Booklet

This booklet is designed to be used by a teacher or guide with small groups of mentally and physically handicapped people. The volunteers and friends of Sunland Hospital residents helped to develop activities they thought the residents of Sunland would enjoy.

The activities are keyed to Trout Pond because of the special facilities available for people in wheel chairs. Many of the activities, however, could be done just as well at the Junior Museum. You may wish to try them at both places.

We hope you will try out some of these activities with residents of Sunland as well as other members of our community. Please feel free to alter the activities to best meet the needs of the people with whom you are working.

To make the memories of the trips to Trout Pond and the Junior Museum last, we suggest you take slides or snapshots of the residents doing the activities. The pictures will refresh the residents' memories and help them in doing some of the follow up activities.

## What is Trout Pond?

Trout Pond Recreation Area is located approximately 12 miles north of Tallahassee, Florida, in the Apalachicola National Forest. This recreation area was designed and built for handicapped persons and their families. Present facilities consist of 15 individual picnic tables, a picnic shelter with four tables, a swimming pool with spray pool and sunscreen, an eight-unit flush toilet building with dressing rooms, a fishing pier, 24 benches, waterfront areas, 3,500 feet of paved trail, a first aid-craft building, and an interpretive nature trail.

The Trout Pond Recreation Area is located on a dry-sand ridge surrounding a ten-acre lake. Vegetation within the area is primarily longleaf pine and turkey oak with wire grass understory. The lake is surrounded by a thick ring of cypress and titi. The land is typical of much of the land throughout the Panhandle Region of Florida. The soils are composed of deep sand with sand topsoil overlying limestone bedrock. Slopes range from nearly level to 13 percent.

Environmental Education Facilities at Trout Pond

These facilities are designed to accommodate handicapped individuals and groups, and educational groups from the school systems. The interpretive area consists of a 700-foot long paved trail and four paved interpretive areas. At each of these areas is a push button and loud speaker. These are connected to an automatic recycling visitor-operated tape recorder to present the message. There are also exhibits, wood samples, and items for students to manipulate. Also, along the trail is a 140-foot long boardwalk that permits students to see unique vegetative types like titi and cypress along the pond margin.

The environmental education facilities are available to groups on a Reservation Basis Only. Contact the District Ranger by dialing (AC) 904-222-9549, Crawfordville. He will set up a time for your group and mail you the lesson plans so each group will have a copy.

Nature Trail Guide

The nature trail at Trout Pond has a series of automatic tape cassette players that give visitors recorded messages about the natural history of the area. These messages are probably too detailed and too long to hold the interest of the retarded. The narrative and lesson plan provided in the U. S. Forest Service guide (available from District Ranger, U. S. Forest Service, Crawfordville, Florida) might be abstracted for some learners. The activities and questions presented here are designed to increase awareness of the natural world. The following narrative provides suggestions of things to say to a group of people at the stations on the trail.

STOP 1. Look at the picture showing what's under the lake and the ground. It's strange to know what is under us.

Have you ever thought about that before?

How does it make you feel?

Feel the rocks. There are rocks like this under the sand you see around here. Feel the sand.

How does it feel?

The picture shows many different layers of rocks and water that are under the ground we are standing on. When a well is put in the ground it must find a place where there is water.

How would you find a place where there is water if you wanted to dig or drill a well?

STOP 2. Many plants have leaves. Find a plant that is not a tree. Look at the leaves. Now look at tree leaves. Let's learn the name of one tree. (Use material at station to find the name of tree and tell the people you are guiding.)

Leaves are beautiful things to look at. One way of keeping leaves is to make leaf prints.

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Make leaf prints of different kinds of leaves and keep them to remind you of your trip to Trout Pond. (Material for making the leaf prints should be at the station.)

STOP 3. Trees have different kinds of wood just like they have different leaves. Wood is what a tree is made of. It's beneath the bark or "skin." Wood from trees just like these is used to make furniture and paper.

Which of these wooden blocks will make the loudest sound?

Which will make the softest sound?

Which block is heaviest?

Which is lightest?

How else do the wood blocks differ (color, texture)?

If you had a choice of woods to build with which one(s) would you choose? Why?

STOP 4. Trees have different smells just like flowers do. Woods also smell different. Smell the four kinds we have here.

Would they make nice perfumes?

Why do you think they smell different?

Look at the different lines and textures of the many kinds of stained wood.

The tree with more lines is older. Which of these is oldest? youngest?

Did you know that different kinds of wood look, feel, and smell different?

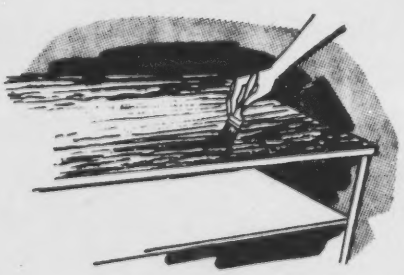
Which would you prefer for a table?

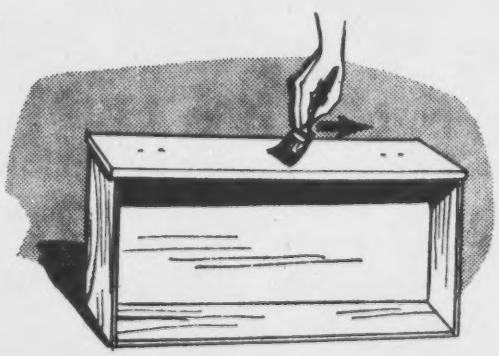
Which one would you like as a dresser?

If you could combine one of the woods that smelled nice and one of these that looks pretty, which two would you choose?

What would you want to make from that wood?

What would you name what you made?







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General Nature Activities

Problem: What reflections can you see in the pond?

Location: Dock at Trout Pond or Swamp Boardwalk at Junior Museum.

Action: Teacher says. . .

"When you look in a mirror what do you see?. . .

Can you see yourself?

What you see is called a reflection.

Find the reflection of the sun on the water. Point to it.

What other reflections can you see? (e.g. - cyprus trees)

Can you see all of yourself? Where is the rest of you?

Note: Give the resident plenty of time to respond to each question.

More (Back at Sunland):

- Find colors in reflections.
- Look at reflections in a puddle.

Note: Be sure to draw analogy between the lake (or water) and mirror again.

Problem: How do you feel?

Location: Dock at Trout Pond or any other spot along trail.

Action: Teacher says. . .

"Think about how you feel when you're back at Sunland. Do you feel the same way now?. . .

How do you feel now?. . .

Choose how you feel

warm - cool

happy - sad

bored - excited

tired - wide awake"

More: Play a record. How does it make you feel? Paint how it makes you feel. Sing a song about how you feel in the out-of-doors.



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Problem: What animals live here?

Location: Anywhere.

Action: Point out signs that animals leave:

tracks in the sand

holes in trees

holes in acorn

plant galls

leaves that have been chewed

bird nests

More: Find an example of an animal depending on a plant.

Find an example of a plant depending on an animal.

Problem: What's the difference between all these kinds of leaves?

Location: Anywhere.

Action: Collect several kinds of leaves and make leaf prints. Leaf prints can be made by pressing a leaf on an ink pad and then transferring the leaf to a sheet of paper. Carefully press down on the leaf and then remove it.

Take you leaf prints and make a booklet of them. Share the booklet with a friend and explain how the leaves are different and how they are alike.

Problem: What animal can a stick become?

Location: Anywhere along the trail.

Action: Teacher picks up some sticks and gives one to each person.

Teacher says. . .

"Make believe your stick is an animal. What animal does your stick remind you of?

Why?

Would you like to become that animal? Why (why not)?

Would you like to become some other animal?

Can you try to act like your favorite animal?" (Let residents get out of wheel chairs and act like "their" animal.)

More: Have unusual shapes of construction paper - What do they remind you of? Teach them an action song such as "Six Little Ducks" or "Hear the Lively Frog."

Problem: Can you recognize a special leaf?

Location: Anywhere along the trail.

Action: Give each person a different leaf.

Teacher says. . .

"Look at your leaf carefully. . .Describe it. (If you know the name, you can tell the person.)

As you go along the trail, look at the leaves on the trees. Are they the same or different from your leaf?

Find a tree with leaves like the one you are holding."

Pick other leaves along the way and ask the residents to compare them with their own.

More: Make various kinds of leaf prints.

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Problem: What animal signs can you find?

Location: Anywhere along the trail.

Action: Point out examples of animal signs (Ways we can tell an animal has been here.)

Examples: Partially eaten pine cone

Holes in leaves

Galls

Animal droppings

Bird calls

Footprints

After you have pointed out one or more animal signs, let the residents look for and point out those signs or other animal signs along the trail.

More: Make plaster of paris casts of animal footprints.

Make a display of signs that you collected (pine cones, leaves)--draw the other ones you observed but couldn't bring with you.

Problem: Who lives with whom?

Location: At various spots along trail.

Action: Teacher says. . .

"Who do you live with?" (other people)

Show them spanish moss. Give each person some moss to feel.

"Who does spanish moss live with?" (Oak Tree)

Other combinations to find, collect, and talk about:

Lichen + tree

Fungus + log

Discuss how residents help one another.

Find a rock and overturn it--"What do you see there? How many different things are living together here?"



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More: Discuss--"Do plants and animals help one another? Do they sometimes hurt one another?"

Take spanish moss back to Sunland or collect some at Sunland and make pictures with it.

Make a three-dimensional scene using items collected at Trout Pond.

Problem: Can you create something with flowers?

Location: Field or trail.

Action: Have residents collect different colors of flowers.

Ask them:

"What color is each flower?

How does it smell?

Which flower do you like best?

What is your favorite color?

How does it feel?

More: Have residents make flower arrangements or collages with the flowers they collected.

Problem: How wild a story can you tell?

Location: In the grass along the trail. Residents sit on grass in a circle.

Action: Teacher says. . .

"We are going to make up a story. I'll start it and then you each will add a little bit to the story."

Here goes. . . "Last Saturday I came out to Trout Pond at midnight. The moon was bright. As I looked at the reflection of the moon on the pond, I heard a scream. . ."

Note: This activity should be used only with those residents who can verbally participate and understand the situation.

For other residents: Teacher could tell a story that includes things that they saw and experienced during their time at Trout Pond. Be sure

to include residents' names and give them a chance to recall the incident and react.

More: Tell another story and draw or cut out pictures that show how you felt during the story. Make a large mural about the story or about Trout Pond in general.

Problem: What shapes can you find in clouds?

Location: Anywhere.

Action: "Close your eyes and imagine that you are riding on a cloud. Where are you going? Why?

Find a cloud that reminds you of something (an animal, a tree, a flower, etc. - suggest one thing at a time.)

(Let the residents look and then share before you go on to the next item.)

Find a cloud that makes you feel some way. (happy, sad, warm, etc.)"

More: Find out where clouds come from and why they are important.

Back at Sunland, have residents lie on grass and watch the clouds as music is being played.

Problem: What noise is that?

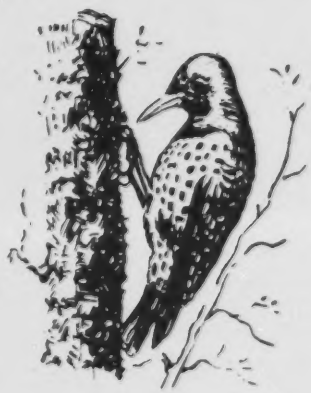
Location: Anywhere.

Action: "Close your eyes and let your ears open a new world to you. Can you hear anything? What?

Can you imitate a sound like the wind or an airplane or a bird?"

Have each person imitate the sound of one thing they heard - do it together and make a "nature chorus."

More: Make a wind chime with materials collected on the nature trail or at Sunland.



Problem: Who will eat our crumbs?

Location: Dock at Trout Pond or Boardwalk at Junior Museum.

Action: Take pieces of bread along with you. Throw small pieces into water around the dock and see if any fish or tadpoles come to surface to eat. If there are any ducks around, try to feed them. Look for other animals living in the lake -- water bugs, turtles, etc.

More: Do the same thing at the Sunland pond.

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Problem: Can you find the Bear?

Location: Anywhere.

Action:

The Bear Hunt

Take a seated position in front of the audience so they can see you. Narrate the following:

Would you like to go on a bear hunt? O.K., let's go. Watch me and do all the things I do and repeat after me all the things I say. Here we go! We're going on a bear hunt, everybody march.
(Make a marching sound by slapping your knees with your hands, alternating.)

I see a river - a great big river. We can't go around it. We can't go under it. We can't go over it. I guess we'll have to swim it. (Pretend to swim by rotating arms. Then resume marching.)

I see a tree - a great big tree. We can't go around it. We can't go under it. We can't go over it. I guess we'll have to climb it. (Pretend to climb, using just your arms. When you reach the top, look around, shading your eyes, climb down and resume marching.)

I see a wheat field - a great big wheat field. We can't go around it. We can't go under it. We can't go over it. I guess we'll have to go through it. (Make the sound of walking through wheat by rubbing your hands. Resume marching.)

I see a cave - a great big cave. We can't go around it. We can't go under it. We can't go over it. I guess we'll have to go through it. (Feel in front of you as though in the dark.) It sure is dark in here. I feel something. (Go through the motions) It's big. It's fuzzy. I think it's a bear. It is a bear! Let's get out of here fast.

(At this point, retrace all the motions hurriedly. Of course, you'll get through first.) I beat you home. And now you've been on a bear hunt!

More: (After you go on the Bear Hunt one time, ask the audience what places they want to go on the bear hunt and then make up the story to fit their wishes. If they don't offer suggestions, make up some new ideas yourself.)

Problem: Can you help the Indians find food?

Location: Anywhere.

Action: Divide the audience into eight groups. Assign a character role to each. Have them rehearse their parts once. As each character is mentioned, the group shouts the proper response. After each person knows his/her part, read the story.

| | |
|---|---|
| CHIEF | Me Empty |
| BRAVES | Ki-Yi |
| PONY | Clip-clop, clip-clop |
| BOW AND ARROW | Swiiissssh |
| FIRE | Crackle, crackle |
| TOM-TOM | Boom, boom |
| DEER | Scitter, scatter |

Story: The Indian Hunter

Many moons ago in the land of Tallahasssee - the Apalachee, Miccosukee Indian tribes were in trouble. For many days no rain had fallen, and the crops were drying up. The buffalo and the DEER had gone away to seek better water holes. To live the Indians depended on the securing of fresh meat.

The CHIEF called a conference of all the members of the village. They all gathered around the FIRE as the TOM-TOM sounded the call. The CHIEF looked around the circle. It was complete, even to his own son, a BRAVE of just nineteen harvests. They discussed their problems until the FIRE dwindled to smoky red ashes. Finally, the BRAVE stood up and said that the only way was for a trueblooded member to go far off where the DEER were grazing and return with food for the village. He himself would go.

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Early the next morning the BRAVE mounted his PONY. As the TOM-TOM sounded, the BRAVE waved to his father, the CHIEF, and rode off on his PONY.

Onward the trail led with the BRAVE and the PONY getting weak. Finally, he came upon a small water hole. There, drinking were two fine DEER. The BRAVE tied up his PONY, aimed his BOW AND ARROW, and let fly two direct hits.

The BRAVE started back to the village with the two DEER strapped to the PONY's back. Despite his great hunger, the BRAVE ate very sparingly, for he knew his people were depending on him. Finally, he came upon a scout from the village. The Indian sounded his TOM-TOM, signaling the CHIEF and the people that the BRAVE and his PONY had returned.

That night there was great rejoicing as the tribe gathered around the FIRE, each eating a welcome slice of DEER. The BRAVE told his story to the CHIEF and his people. This story of his PONY and his BOW AND ARROW is relived today in the Indian dance legend to the sound of the TOM-TOM.

North Florida Wildlife

by

Leon County Sportsmen
Association

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Tom Herbert
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# HANDICRAFTS AT THE TALLAHASSEE JUNIOR MUSEUM

prepared by:

Helen Grissett
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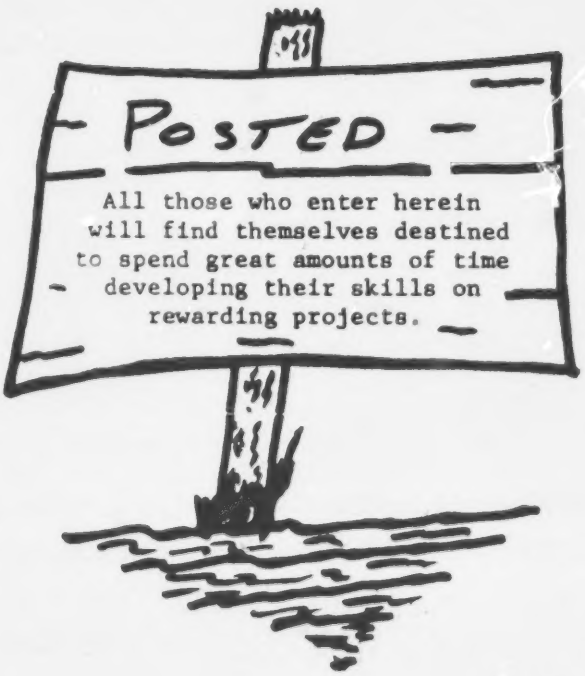
The Girl Scout Council of
Apalachee Bend

December 1974

With the Project Staff



## Introduction

Instead of just looking at the pioneer farm house, why don't you try to act out how the pioneer family lived. You may want to prepare a special meal, and then you'll need soap to do the dishes, and toys to entertain the children. If it begins to get dark you'll want candles to help you see as you make a patchwork quilt to keep you warm as you doze off in exhaustion. All these pioneer handicrafts plus more are explained in this booklet. Have fun as you journey back in time at the Junior Museum.

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## Spinning, Dyeing, and Weaving

a) In pioneer times when people lived in small settlements or on isolated farms or plantations, cloth in quantity was often difficult to obtain and expensive. Settlers often made their own cloth by growing such crops as flax (to make linen), cotton, and by raising sheep and shearing them for wool. The flax and cotton fibers were separated from the seeds, wool fibers were cleaned and carded, and then the fibers were spun into thread or yarn. Often linen and wool were mixed as the yarn was spun to make linsey-woolsey which could be woven into warm heavy fabric for capes and jackets. (see section on spinning and dyeing.) Yarns were dyed, often using natural vegetable dyes, and then woven into fabric. Simple looms were used to make cloth for clothes, blankets, and many other things. Spinning implements (simple spindles used by early settlers or spinning wheels in later settlements) and looms were part of every home. Even very wealthy families had servants or slaves who did the spinning and weaving to make clothing and blankets for the family. As households and settlements became larger, one family might have done all the weaving for a settlement just as another family would have done harness-making, another pottery, another blacksmithing. Large amounts of cloth were made on large floor looms that were operated by hand levers and foot pedals. There is a floor loom like this in the Junior Museum farm cabin.

### Making Yarn or Spinning With a Drop Spindle

#### Making the Spindle

Materials needed: a dowel stick 9 - 10 inches long
a 1/2" cross section of wood 2" in diameter with a hole in the center big enough for the dowel to fit through.

Directions:

1. Put the 2 pieces together to look like this:

2. Notch the bottom end of the stick so a piece of yarn can be held securely.

#### How To Do The Spinning

Start with a piece of carded wool (clean wool combed so all fibers are lying in the same direction) about 6" long. Roll this crosswise so you have a piece about 4" long and 1 1/2" in diameter.

Wet the ends of your fingers and pull a little away from one end of the roll without breaking it off. Twist it lightly and continue pulling it from the roll. Be sure to hold the end so it doesn't unravel (wrap it around the fingers of your other hand). When you have a piece about 2 feet long, you're

ready to start using the spindle.

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Anchor the yarn on the spindle by wrapping it around the base (Fig. 1.)

Figure 1

Figure 2

Figure 3

Bring the end of the yarn down toward the bottom of the spindle and put it through the notch on the bottom of the stick. Then bring it up towards the top (Fig. 2.)

Make a loop in the top of the yarn (ℓ) and put it over the top of the dowel with the free end underneath (Fig. 3.) Pull it tight so you can hold the spindle by the string.

Spin the spindle with your hand and gradually pull out the wool and twist it through your fingers, letting the rotating spindle keep the twist. Keep the spindle going so the yarn doesn't unwind. When the spindle reaches the floor, stop and wind it up, being careful not to let the end unwind.

Try to feed the wool in a steady flow to make a smooth yarn.

## Dyeing With Native Plants

*"Home-dyed colors kindly meller down,*
*Better than the new ones fetched from town."*

For thousands of years man has sought to improve or embellish the appearance of fabrics, leather or paper by dyeing them. One garment found in Thebes had been dyed about 3000 B.C. by use of the oldest known dye--indigo.

The one predictable thing about vegetable dyeing is its unpredictability. It is an art, not an exact science, and the results will vary according to the fabric, dye, mordant and chemistry of the plant, as well as to its season and growth location. Even if all these variables could be controlled, the recipe used, the number of times dipped, the chemistry of the water, etc. provide other variables.

Now do you want to go on with something so unpredictable? If so, assume the attitude of an explorer or inventor.

Gathering dye plants:

For one pound of wool, gather:

Bark (finely chopped)--one peck
Hulls (dried) -- one peck
Flowers (fresh)--1 1/2 pecks
(dried)--1 1/2 quarts
Leaves (dried) -- 3/4 peck
Roots (extremely unreliable)



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Colors and Dye Plants:

Violets:
Wild Cherry--Roots and bark
Maple--Rotted Wood
Grapes--Fruit
Horsebrier--Berries
Red Cedar--Roots

Reds:
Cranberry--Berries
Pokeberry--Berries
Dogwood--Roots
Hollyhock--Red flowers
Birch--Bark
St. John's Wort--Leaves

Greens:
Elderberry--Leaves
Mistletoe--Whole plant

Blues:
Elderberry--Berries
Bayberry--Berries
Horsebrier--Berries
Blackberry--Berries
Blueberry--Berries
(No Mordant)

Browns and Blacks:
Cherry--Bark
Birch--Bark
Black Walnut--Autumn leaves, hulls
Red Cedar--Bark, berries or twigs
Sumac--Leaves and twigs

Yellows:
Wild Cherry--Bark
Chrysanthemum--Flower
Dahlia--Flower
Dodder--Vine
Elderberry--Leaves
Goldenrod--Leaves and flowers
Cocklebur--Leaves and stalks
Bayberry--Leaves
Onion (yellow)--Skins
(red) --Skins
Hickory--Inner Bark
St. John's Wort--Flowers
Oak (Black or Red)--Bark
Spinach--Plant
Tomato--Vine
Brown-Eyes Susan--Whole plant or flowers
Ironweed--Bark
Horse Sugar--Leaves
Coreopsis--Plant

Beige or Tan:
Sassafras--Root or bark
Lichens--whole plant
Poke--Leaves
Walnut--Hulls
Sumac--Berries
Oak--Bark

Preparing Dye Plants:

Cut dye materials into small pieces and pound to allow the pigment to separate itself. This can be done in the proper season for gathering and the dried materials then stoned for later use.

Use granite or glass or an enamel pot as the metal will affect the color. Select a kettle large enough to float the material easily. Use soft water. Rainwater is best. Enter the wool, washed and wet, in a tepid bath. Avoid sudden changes of temperature to minimize shrinkage. Squeeze--never wring. Keep water content at same level, adding boiling water BUT remove wool to do this.

Cover dye plant material with water and bring to heat--just to below boiling point. Simmer until color pigment seems to be released. The length of time will depend upon the material being dyed and the dye material being used.



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Naturally, bark takes longer than leaves, leaves longer than berries. The dye material may float free in the pot or may be enclosed in a mesh or net bag to eliminate straining.

Rinse wool well to remove excess or loose dye materials.

You may wish to dye other materials besides wool and then compare the colors that result.

References:

Coon, Nelson. Using Wayside Plants. Hearthside Press, Inc., 1960.

Davidson, Mary. The Dye Pot. Printed in the Smokies by Marion Mangrum, 1950. Published by Shuttlecraft Shop, Middlesboro, Kentucky.

Mordanting

Mordanting Fabric:

Plant colors are not fast nor are they washable, so something has to be done to wool to fix the color. This happens in the mordanting process which can be done before, during, or after the dyeing. The timing affects the fastness and the intensity of the color. The mordants combine chemically with the dyes to form compounds that do not dissolve easily.

Metallic mordants to be used with acid dyes are chromium, iron, aluminum, and tin. Acid mordants to combine with basic dyes are tannic acid, lactic acid, and oleic acid. By using different mordants a variety of shades and even different colors can be obtained from the same dye.

When to use the mordant? You have a lot of leeway.

1. When mordanting precedes the dyeing of the wool, a much brighter color is obtained.
2. Mordanting may be performed with the dyeing. The dye and mordant may be put together at the beginning of the dye bath, or the mordant added as dyeing takes place. In the latter event, remove the fabric when the mordant is added, then replace.
3. Mordanting may take place after dyeing, and is usually a process for saddening or darkening colors.
4. The wool may be mordanted, then dyed, then put through second mordant bath to give maximum fastness.

Materials used in mordanting include alum, chrome, copperas and tannic acid. Different mordants give different shades and sometimes even different colors.

Alum (Potassium aluminum sulphate)

For one pound of wool, use 3 or 4 ounces of alum to one ounce of cream of tartar. Dissolve the alum in warm water and add to the 4 gallon bath when it reaches about 160 degrees Fahrenheit. The cream of tartar is dissolved in warm water and added next. The washed, wet wool is entered and the bath brought to boiling point and held there for approximately

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an hour. Remove from heat and let stand overnight in the bath. Remove fabric, squeeze dry and roll in towel to dry or dye.

Chrome (Potassium bichomate)

Dissolve 1/2 ounce of chrome in 4 gallons of water (160 degrees) and proceed as above. Chrome is harder to use than alum but gives bright colors.

After boiling one-half hour the material can be removed and 1/2 ounce of cream of tartar dissolved in warm water may be added. Stir well. re-enter fabric, and boil one hour longer.

Iron (Ferrous sulphate, copperas)

Iron, used toward the end of dyeing, saddens the color and used thusly is not really a mordant. It may be used as a mordant, but great care must be taken to prevent streaking, and too much iron will harden the wool.

## Weaving

Often each family would have its own large loom made of wood, but there are many simpler, smaller looms that you can make. Early settlers who did not have the time or tools to make floor looms had smaller looms made out of wood and nails or pegs. You can make looms like these with some pieces of scrap lumber, nails and a hammer, or you can make a loom from cardboard. (Of course, the pioneer farmers didn't have cardboard, but they could do almost the same things with their shingles of wood). Pioneer children probably learned weaving with looms like these.

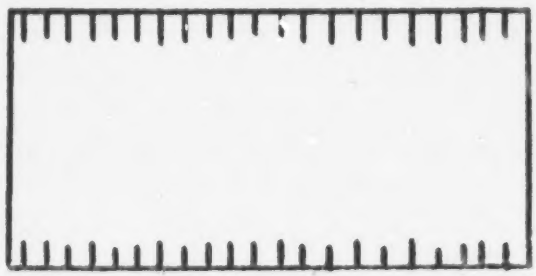
b) Simple frame loom

CARDBOARD LOOM

Materials: stiff cardboard into which slits can be cut (the piece should be a square or rectangle somewhat larger than the finished piece will be; yarn (preferably all of the same weight) in assorted colors; popsicle stick or tongue depressor to make a bodkin (parcel post twine (not stretchy) for warp if desired.)

Tools: sharp scissors to cut slits in cardboard

Making the loom:



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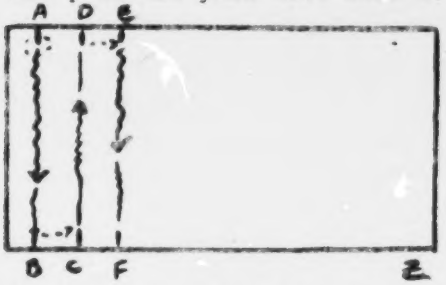
Cut an even number of slits in the upper and lower edges of the piece of cardboard. Slits should be about 1/4" apart and 1/4" long.

Warping the Loom:

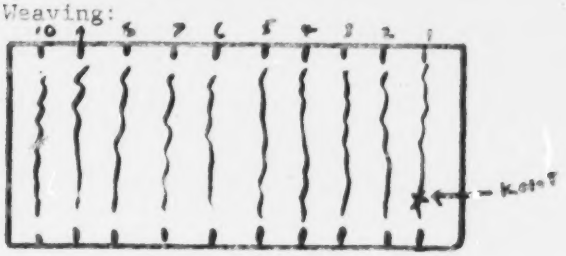
The threads that go up and down and are held by the slits in the cardboard are called the warp. Sometimes strong strings or one particular color of yarn is used for the warp. Tie a knot in the end of the warp string or yarn. Put the knot end behind the loom and pull the yarn into slit A.




Pull on the warp until the knot is held by the slit; put the yarn into slit B; pull the warp up through slit C; put the warp into slit D; pull up through E; go up and down until you come to the last slit Z.

Pull the yarn fairly tight but not tight enough to bend the cardboard. Tie a knot in the warp thread behind Z or tie the warp around a button or stick.

Weaving:




Cut a length of yarn (three yards or so) and thread one end into the hole cut in one end of a popsickle stick. Tie the free end of the yarn on warp thread 1 about 1" above the slit. Using the stick and your hands to guide the warp thread, go under warp #2, over #3, under #4, over #5, . . . all the way to the other edge, ending by going under the last warp. Pull the thread (called the weft) snug but not hard enough to draw the warp threads together very much. For the next row, go over warp 10 (or whatever the last warp is), under the next . . . to the other side. Push the second weft thread down next to the first. Continue going back and forth until yarn runs out. Leave the end on one side or the other. Begin a new shuttle on that side, but leave an end. Tie the ends together with a square knot (do not pull ends too tightly.)

Weave as close to the top of the loom as you can. End by tying the weft to the last warp thread. Remove the weaving from the loom by cutting the warp threads at the slits (to make fringe) or by bending the cardboard to slip off the loops.



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More Things to Make:

Use large cardboard looms: (make the loom about 1 1/2 times as long and as wide as the piece you want.)

-Placemats, table mat (for under a vase, or candlestick)
-Handbag - make two rectangles for the sides of the bag and a long narrow strip for a handle
-Pillow - make two rectangles same size - stuff with polyester or cotton
-Belts - sew strips together

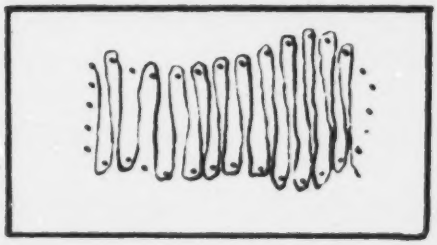
Use small cardboard loom: (for a small loom use a needle to hold yarn instead of a stick.)

-Doll blankets
-Jeans patches

Use wooden loom:

Materials: pine board, yarn, nails with small heads
Tools: hammer, large needle

Make a pin or nail loom in a simple shape (square, circle, heart) by hammering small nails with small or no heads into a piece of pine board.



Warp as shown below and weave back and forth as for cardboard loom using a large dull needle to weave. Wrap weft threads around nails on sides of frame to maintain the shape of the figure. When the shape is completely filled in, slip the woven piece off the form.

To make: handbags, belts, pillows, jeans patches, place mats.
Try sewing many squares or rectangles together to make a skirt or poncho or dye your own yarns. Then try a more complicated loom (see resources.)

Resources for leaders and older girls:

Weaving Techniques and Projects (Sunset Books, 1974.)

Murphy, Corinne M. "An Introduction to Weaving," Girl Scout Leader. March 1973.

## Patchwork and Quilting

Because pioneers had to travel many miles to obtain bolts of cloth or spin and weave their own cloth from cotton, linen, or wool from their own farms or sheep, every piece of cloth was precious. Clothing that had become worn or that children had outgrown was not thrown away. Children's clothing that could still be worn was passed on to younger children in the family or to other families. Every good scrap of cloth from worn clothing and remnants from sewing was saved. These scraps were cut into small pieces (squares, triangles,

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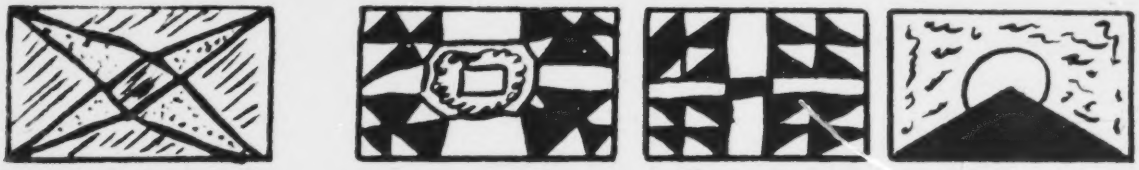
circles, hexagons) whenever the pioneer mother or grandmother had time. She might have worked on cutting the cloth scraps into these small pieces in the evenings by lamp or candle light after she finished her mending. She taught all the little girls how to cut up scraps for patchwork when they were very young because most girls were expected to make several quilts before they were married at age 14 or 15. When enough pieces had been cut, they were sewn together in patterns to form larger square or rectangular or circular sections. The sections were sewn together to make quilt tops. All the sewing was done by hand. The stitches had to be small and firm so that the quilt top would not come apart. Some of the patterns for the quilt blocks were popular and were used over and over again and were given special names. (Figure 1) Sometimes the names described what the block look like. Because the pioneers were often very religious, sometimes the names of the patterns used names from the Bible.



World Without End | Crown and Thorns | Flying Geese | Moon Over the Mountain

Figure 1

Often pioneer homes were drab because the families could not obtain or make fancy furniture or dishes and all the cleared land was used for growing food so that there was no room for a flower garden. Pioneer women tried to make their patchwork quilt tops as lively and pretty as possible to help decorate their farm cabins. Once a quilt top was made, a piece of plain cloth (perhaps woven on a loom in the cabin) was cut the same size for a backing. A layer of cotton or wool batting (like the filling in quilts today) was placed between the top and the backing. Then the finished quilt was made. To keep the batting or filling in the quilt from shifting, so that the quilt would stay warm and not get lumpy, it was necessary to stitch the top and bottom together with many rows of stitches. Usually all the women, young and old, from a frontier settlement, would get together for a "quilting bee" to do the quilting. The quilt to be quilted was put on a large wooden frame. The frame was probably kept in the home of the most experienced quilter. Ladies sat on all four sides of the quilt and made many rows of tiny hand stitches. Quilts were sometimes tied. Yarn is threaded in a needle and goes through all thicknesses. Then the yarn is brought back up and the two ends are tied in a knot. The ends are cut off so about 1 inch long. Ties are made every 4 or 5 inches to keep batting from shifting.

Quilts were also made by appliqueing cut out shapes(flowers, circles, geometric shapes) and sewing them on a plain quilt top. Crazy quilts were made of cotton or velvet. Patches of all different sizes and shapes were pieced together like a jigsaw puzzle. The valuable velvet and silk ones were made by wealthy people for use in the winter.

You can try out patchwork by making simple items like pillows, placemats, and tote bags. Try doing all the sewing by hand and imagine how long it would take to make a quilt out of hundreds of tiny patches. Then you might try something more difficult like a skirt, apron, or full size quilt. Which of your friends would you invite to your quilting bee?



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Don't buy all of the gingham or calico for your patchwork projects. See how many patches you can cut from leftover sewing scraps and old clothes that no one can wear anymore.

References:

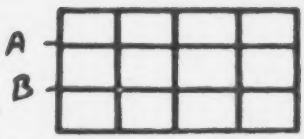
Ickis, Marguerite. The Standard Book of Quilt Making. Dover Books, 1949.

Quilting and Patchwork. Sunset Books, 1973.

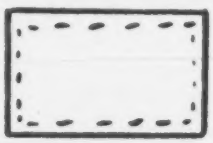
Placemat

Tools and materials: 24 - 6" squares cotton
thread, needle or sewing machine
iron and ironing board, pinking shears

1. Cut 24 6" square patches




2. Sew squares together in strips of 4
3. Sew strips together at A and B
4. Make 2 pieces each with 12 squares.
5. Place the 2 pieces with wrong sides together and stitch all around about 1" from the edge.

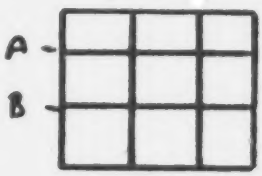


6. Press with iron and wet cloth.
7. Finish edge by trimming evenly with pinking shears.

Napkin

Tools and materials: 9 - 6" squares cotton
thread, needle or sewing machine
iron and ironing board

1. Cut 9 6" square patches
2. Sew squares together in strips of three
3. Sew strips together at A and B
4. Hem all four edges
5. Press




Small Pillow

Tools and materials: 8 - 6" squares of gingham or calico
stuffing (4 ounces)
thread, needle and/or sewing machine

1. Cut 8 square patches, each 6" by 6"
2. Make two sections like diagram (try to have each square different.) Make seams A and B first (make all seams by placing right sides of patches together) then seam C.



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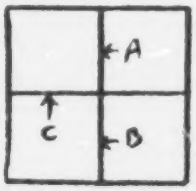
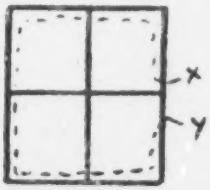
3. Now place the two sides of the pillow together (right sides together) and stitch from X to Y; be sure to leave a space large enough for your hand between X and Y.




4. Turn the pillow right side out.
5. Stuff the pillow firmly with polyester stuffing. Be sure to push some stuffing into the corners.
6. Sew up the opening with overcasting stitch.

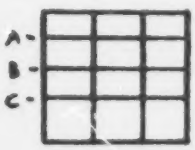
Quilted Christmas Ornaments

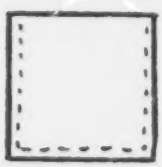
Tools and materials: 8 - 3" squares of gingham or calico in bright colors, thread, large needle, sewing machine, pinking shears, about 1 yard of yarn, cardboard (5" squares), polyester stuffing

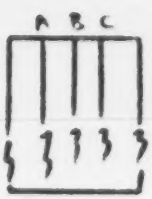
1. Cut 8 3" square patches
2. Sew squares together into 2 larger squares of 4 each
3. Cut a pattern (diamond, circle, heart, etc.) out of cardboard - pattern should just fit on square of cloth
4. Cut around pattern with pinking shears
5. Stitch two sides together with yarn from X to Y (leave a small opening)
6. Fill with stuffing
7. Sew the rest of the way from Y to X
8. Attach a 3" long loop of yarn for hanging
9. Tie the ornament in the center by passing needle through center front to back and bringing it up again. Tie yarn in square knot and then in a bow in front.

Patchwork Tote Bag

Tools and materials: 24 - 6" squares of gingham and calico, about 1 yard of denim or duck, thread, sewing machine, scissors






1. Cut 24 6" squares of gingham and calico
2. For each side of the bag, sew 4 strips of 3 squares, then sew strips together at A, B and C.
3. Cut 2 lining pieces of denim or duck the same size as the sides of the bag
4. With right sides together, sew lining pieces together along 3 sides. Do same with outside pieces.
5. Turn outside right side out.
6. Turn upper edge of lining and outside over.
7. Place lining inside of patchwork bag. Stitch lining and bag together near top. There should be no raw edges anywhere.
8. Cut two pieces of denim 8" X 18". First fold the strips on lines A and B to inside and then in half on C.



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Raw edges should be inside.

9. Stitch each handle lengthwise two or three times.
10. Turn under ends of handles. Stitch ends at X's on outside of bag on each side.

Friendship Pillow

(Materials as for small pillow but 18 squares, plus embroidery floss.)

Pioneer and farm women often made friendship quilts with their names and designs embroidered on them. Perhaps you and other girls in your troop could make a friendship pillow to give to your leader or a shut-in.

On each 6" square embroider your name or initials in the center of the square. Perhaps you would want to add the date or a design. Take 18 squares - sew 9 together in three rows of three squares. Complete as for small pillow.

## Rug Braiding

The braided rug is one of the most serviceable and effective of the needle rugs. Braided rugs can be made entirely at home and with otherwise waste material. The really old ones were made of cotton rags or cotton and woolen mixed, in fact of anything old or new which came in handy.

The braided rug is made in 3 forms: square, round and oval. An old square rug is sometimes started with a piece of carpet in the middle but usually that doesn't look too good.

Before doing any work on the rug it is advisable to read over the whole description of the procedure in order to get a general idea of the subject, then to go back and go over it again, preparing the materials this time and leading up to the final sewing of the braid.

To make a small oval rug (bath mat) in blue and white in size 26 X 32:

Tool needed: coarse sewing needle suitable for white cotton, size No. 24.

Plain colors can be used effectively when combined with figure goods, (select figures that are small and broken up rather than a distinct pattern like dots or plaid) either by using braids entirely of plain material or braiding 2 strands of one with one of the other.

A rug this size requires nine yards of medium blue cotton print and six yards of unbleached cotton of the cheapest brand.

PREPARATION: Tear into lengths of 1 and 1 1/2 yards (if any longer they may tangle in the braiding process.) Wash each color separately and rinse

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until no more dye comes out. Then hang in the sun to dry. Don't wring out.

REMEMBER: When selecting materials - stiff materials don't braid too well. When they are dry, dampen and press them (or use a steam iron.)

Tear both blue and white lengthwise (the way of the selvage) into strips 3 1/2" wide. Measure across and divide entire width of cloth along the edges into spaces of 3 1/2". Make a cut 3" deep at each measurement. Take up the cut ends, one end in the left hand and another in the right, until all cut ends are held in the hands, a number in each hand. Then pull the whole piece apart into strips with continued sweeps of the hands. If 2 people tear, it is more easily done.

Fold in the torn edges of each strip for 1/2 inch on each side, then fold these turned-in edges equally to meet in the center. The strips should measure 1 1/4" when finished. (never narrower than an inch, even though the width can vary a bit)

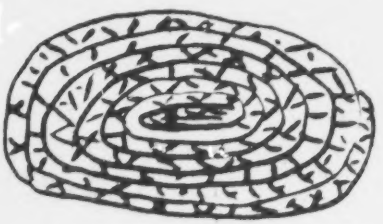
After folding, iron the strands and wrap them around pieces of heavy cardboard to keep them smooth and the folds in the right place. Wrap each color on a separate card and don't put too many strips on one.

THE DESIGN: Center - 7 rows of blue; outside this 4 rows of mixed blue and white (2 strands blue and 1 of white.) Then 4 rows of 2 strands white and 1 blue. Next 2 rows of all white, then 1 row of blue, then 2 more white. Then 4 rows of a braid made of 2 white, 1 blue. The finish, or border, is five rows of braid made of 2 strands of blue, 1 white.

BRAIDING THE RUG: Start - Take 3 folded strands of blue and holding the ends together, sew them. Pin or tie these at the end where they are sewed, to something heavy so they will be firm and taut while braiding. Braid together until within 3" of their ends. Then pin or tie these ends so the braid won't unravel. Measure off 14 inches of it from the end where the braiding was started and double it together to form a loop. Sew this together (over-hand) along the inside edges of the braids, beginning to stitch where the 3 strands were first over-handed and working down toward the other end of the loop which is the rounder end.

The start of the braiding rug, showing the overhanding of the braid.

Go back now and take the loose end of the braid and over-hand it round the two first rows and go on until counting from side to side 7 rows are sewed.



The worker will notice that the sides of the oval are as yet straight. They will begin to curve out as more rows are added.

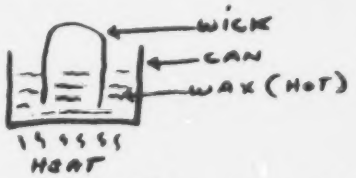
These first 7 rows form the center of the rug; when completed set aside the blue braid. When starting a new color of braid add to that already sewed at the curved end of the oval rather than to its straight side. Always begin the rows that are to be continued on the same side of the rug. If some of the braid leaves a loose remainder at the place for adding a different color, cut it off but do not cut it straight across: unbraid it a bit and then cut the three strands off separately, each at a different point. Sew the ends of the strands of the new braid to these ends. Likewise when adding more strands of the same color or in introducing new colors to lengthen the braid, over-hand these new pieces to the end of the braided strand. Let the seams come on inside of the folded strand where the raw edges will not show.

In braiding the strands it will be found that the ends do not come out evenly. This is because the worker pulls more on one than on the others. There is no objection to this, however, for the seams in the strands must not all come at 1 point. If they came together, the braid would bulge and be clumsy at that point. This is the reason for cutting the strands at different points when it is necessary to cut them at all. Sometimes a length of braid just finishes the required number of rows, but if it doesn't, be sure to save all the clipped-off ends, because you may need them (even the tiniest piece) to finish up a row of some desired color.

Lay the rug down on the floor from time to time during its construction, to see that it is keeping its form and also that its smooth and flat. When the last row of braid required has been over-handed on, sew the ends down as flat as possible on the wrong side of the rug, turning the strands under one by one.

## Dip Candlemaking

Pioneers could not sit up and watch television at night or flip on a light to read the newspaper. As darkness descended they would light candles, which they probably made themselves.




Equipment and Materials Needed:

-Wax (75% parafin, 25% beeswax)
-Heat source
-Wicking
-2 cans or old pans (deep enough to make the size candles you want)
-Cord (to hang candles on between dipping)

Directions:

1. Heat the wax. Be sure the depth of the wax is sufficient for making the size candles you want. You will need to experiment with heating the wax to find the right temperature for dipping. If it is too hot wax already on the wicks will melt. If the wax is not hot enough it will not dissolve.

2. Add any candle scenting or dye to your liking.

3. Cut two pieces of wicking each long enough for two candles.

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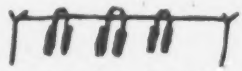
4. Tie up cord you will use to hang the drying candles on between dips.
5. When the wax reaches the right temperature, hold the wick at the center, dip it in the wax, and then dip it in cold water.
6. Hang the wax-coated wick to cool for several minutes. (Figure 2)



7. Redip as many times as needed (probably 30-35 dippings) to get the candle size you need.

   While you're waiting for each candle to cool between dippings, you can be working on dipping others.

Note: To make your own wax, boil bayberries. The wax comes to the top.

## Soapmaking

In pioneer days people could not go to the supermarket to buy so many of the conveniences to which we are accustomed. One thing they had to make themselves was soap. They could get all the essential ingredients right on the farm.

All soap recipes contain 3 basic ingredients: lye, animal fat, and water. Any type of animal fat can be used. Pioneer families would save any type of fat until they had enough to make the soap.

Their lye was made at home. Whenever the ashes were cleaned out of the fireplace they were stored in a hollow tree or a trough called an ash hopper. Straw or corn shucks were put in the bottom of the hopper to keep the ashes from sifting through. Then water (about a gallon or two at the time) was poured over the ashes. What ran off was caught in a container and this was the lye.

All the recipes I found called for canned lye. I didn't know how to convert this to the homemade kind so I'll give the directions using store bought lye.

You'll need one gallon of water, one can of lye (13 oz.), and about half a gallon of fat. The fat may be cleaned by boiling it with water. As it cools, the clean fat rises to the top and the food particles sink to the bottom. Do this a few times and the soap will turn out to be really white. This is called rendering the fat.

To the gallon of water add the can of lye and the fat. Cook over the fire in a large wash pot for 30 minutes while stirring and then add another half gallon of water. Take the pot off the fire. Stir until thick and then let it sit overnight. It may then be cut into bars.

## A Cold Water Method

This is an easy method for demonstrating soapmaking. There is no cooking involved. This recipe called for five pounds of bacon drippings (or other fat), one can of lye and one quart of water.

Add the quart of water to the lye in a porcelain or earthenware container. Stir with a wooden stick or spoon. Do not use an aluminum utensil because the lye reacts with aluminum.

The lye and water mix chemically and produce heat. Children are fascinated with this because it is a chemical reaction that they can see and feel.

The next step is to add the lye mixture to the fat, stirring constantly until the mixture is the consistency of mush.

Pour the soap mixture into a cardboard box lined with cloth or the bottom of a milk carton. The lye is not dangerous after the soap hardens and cools because the fat neutralizes the lye. The sign that this has happened is that the soap is cool.

*Safety precaution: Keep vinegar handy in case anyone gets lye on the skin. The vinegar will neutralize the lye and reduce the chance of a serious burn. Warn children to be extremely careful when using the lye.

Coloring soap - Candle coloring or any coloring with wax base. Color cannot be predicted when using food coloring or anything water based. The best thing to use is candle dyes which are oil based.

Perfuming - Natural scents are best such as fragrant leaves or plants (ginger, peppermint, etc.) or something with an oil base such as Oil of Cloves. The scents for candlemaking also work well. Perfume will not work well since it is mostly alcohol.

## Toys

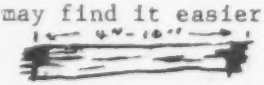
Children in pioneer days enjoyed playing with dolls just as children do today. Many pioneers made their own dolls out of wood or other natural materials such as corn husks.

### Corn Husk Dolls

To make a small and simple doll, you need corn husks, scissors, string, and colored pencils or ink.

1. Use the inside layers of husks. Dry 1-2 days in sun. Soak in water 5 minutes. Wrap the husks in a paper towel. Dampen as needed.

2. To make the girl, split one section of husk lengthwise and cut a piece 4" long (beginners may find it easier to use a piece about 8-10" long.)



3. Fold the husk and tie a cord around it a little below the fold, to form a head.

4. The arms are a short piece of husk placed between the folded husk. Tie a cord below the arms to secure them and to form a waist. Tie wrists.

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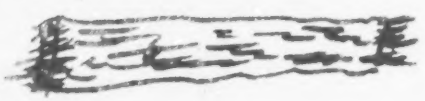
5. Draw features on the face with a colored pencil or pen.

6. To make a boy, follow these directions, but split the skirt to make legs. Tie cord at the ankles.

Large Dolls

You need corn husks, scissors, string, corn silk, and colored pencils

1. Begin with 6 full-length sections of soft dampened husk. (Soak in water 5 minutes; dampen as needed.) Use corn silk for the hair.



2. Pile the husks up and place the corn silk on the top in the center. Fold the husks so the silk is on the inside, and tie the string about 1 inch from the fold.

3. To make the head, turn the husk inside out so the silk is now on the outside. Tie another cord 1 1/4" from the top. The corn silk hair can be braided at the sides and bangs cut above the face.

4. Use separate husks to make the arms. The arms can be made straight or braided. To braid - use 3 husks: braid and tie at both ends for wrists.

5. Place the 'arms' piece between the husks hanging below the neck. Tie with a cord.

6. To make skirt, turn up two of the six husks in front and two of six husks in back and tie with a cord.

7. Three additional husks can be tied to each of the remaining husks and braided to make legs. Tie at ankles. Turn skirt down and cut off short so legs show. Let dry. --or--Turn skirt down after tying and let dry. Doll will stand up by itself with the support of the skirt.

(or)

8. Put face on doll with colored pencil or ink.

References:

Ickis, Marguerite and Reba Selden Esh. The Book of Arts & Crafts. New York: Association Press. Copyright 1954.

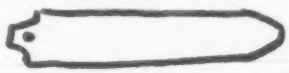
## Wooden Toys

The history of whittling, and its more sophisticated cousin "wood carving", lies in antiquity, its origin lost. But the results of this pastime have been handed down from one generation to the other, appreciated in the form of a folk toy or, perhaps, a tool for use in the home or field.

These folk toys are fun and a study of them reveals that the people who made them were resourceful and inventive. Often they made use of some rather obscure scientific principle. Or, the toy may have incorporated a trick to reveal a sense of humor on the part of the maker.

## Bull Roarer

Material Needed: 1. Paddle - quarter inch wood, shaped into paddle form as below:



2. Handle - branch smoothed to about 9" long. See below:

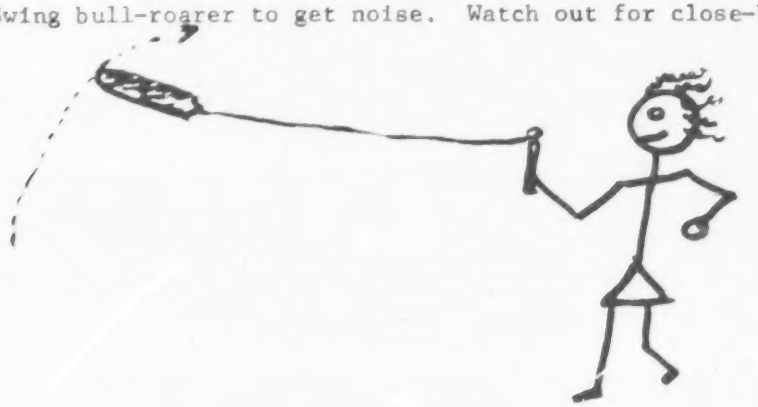
3. Cord. Perhaps #21 nylon twine. Approximately 42".

Cut out the paddle, and sand all edges smooth. Drill small hole in one end. Small notches may be cut along edges to increase noisemaking capabilities.

Cut handle to length and put groove in one end.

Loosely tie cord to groove.

Swing bull-roarer to get noise. Watch out for close-by people!



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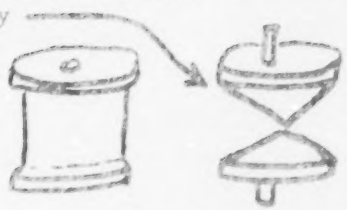
Spinner (or Whirly Top)

No child should be allowed to grow up without a chance to make and operate his very own spinner top--and in the olden days few did. Now, in these days of synthetics, a wooden spool may be a bit hard to come by.

Material: a wooden spool and a length of dowel of correct diameter to fit tightly into center hole.

This little fellow can be hand-carved or turned on a lathe. Two spinners can be formed from one spool if you have a tool for cutting through the center, thusly



Spin him with the fingers, and he will continue to go round--and round--for a surprisingly long time!

Skyhook

The skyhook is a legendary device for supporting a weight without any visible means. This "Skyhook" has been known for generations. It will balance itself at the end of the finger, but only if a leather belt is hung in the groove. Nothing but a stiff belt will work!

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Material: One piece of hardwood 5/16" thick, 1 1/2" X 3 3/4"

Using the pattern given cut (jigsaw or carve) shape from wood of given dimensions. The balancing edge must be straight, broad and sharp. For the performance, use a leather belt of any width, length or thickness.

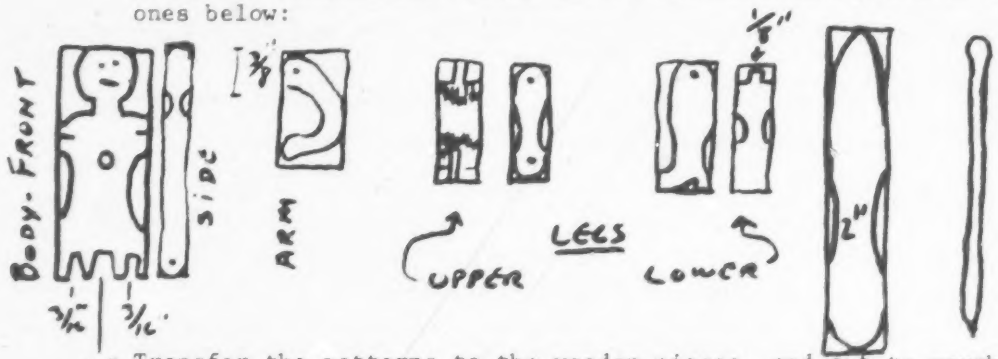
Dancing Man (also known as Limber Jack or Stomper Doll)

The dancing man is an American Folk Toy, probably inspired by the traveling shows which periodically came to town, bringing welcome and rare entertainment. The dancing of the minstrel or showboat characters was bound to make a hit with those isolated people. The dancing of this toy is reminiscent of the vigorous tap dancers and served as a reminder of the pleasant time they had had.

Materials:

- Body: 2 X 6 inch hardwood, 3/8" thick
- Arms: Two pieces of hardwood, 2 1/2 X 1 1/4, 3/8" thick
- Lower Legs: Two pieces hardwood, 2 1/2 X 7/8", 3/8" thick
- Upper Legs: Two pieces hardwood, 2 1/2 X 1/2", 3/8" thick
- Paddle: One piece 2 feet by 4 inches, 1/4" thick
- Stick: Hardwood branch about two feet long and 1/2" in diameter. Leave bark on if so desired.
- Wire: 8 to 10 inches of steel wire, approximately .042" gauge.
- Paint: Felt tip pens

Using the measurements given above, cut cardboard patterns similar to the ones below:




Transfer the patterns to the wooden pieces, and cut to rough size (saw). Drill the required holes and hand-carve the rounded surfaces needed to give a more natural appearance to body, legs, and arms. Assemble the joints loosely for free movement, using wire pins. Add facial features. Sharpen the stick and place in a quarter inch hole in the back of body. (All other holes are 1/16".)



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Sit on one end of board (place board between operator and chair with end extending) with the man's feet lightly touching opposite end. Tap on area of board near and directly back of doll's feet. This done to rhythm of a lively dance tune gives a most realistic performance.

Reference:

Schonacke, Dick. American Folk Toys. New York: Putnam's Sons, 1973.

## Cooking Over a Fire

Today most people have fireplaces in their homes as an amenity rather than a necessity. Once, however, the fireplace was at the very center of home life, being used not only for warmth but also for cooking.

Cooking over a fireplace may sound simple, but in fact it requires a great deal more time and effort than using a stove.

First principles: There are a few general notions about cooking which are important to remember. If you get these six basic principles firmly in your head you will be a long way on the road toward becoming a good pioneer cook.

1. Have a proper fire. A cooking fire should be small and so arranged that you can cook over it in comfort, without getting your fingers burnt, you face roasted, or your eyes filled with smoke.

2. In broiling over an open fire, have glowing coals rather than high flames. The tenderfoot holds his quarter pound of meat right in the flames and produces a half-smoked, half-burnt piece of meat which is as dry and tough as leather. Wait for a good bed of coals before doing any broiling.

3. In frying, the grease must be hot before anything is put into it. Nothing is more discouraging to a hopeful stomach than a grease-soaked, soggy pancake cooked by someone in too much of a hurry to wait until the grease was smoking hot.

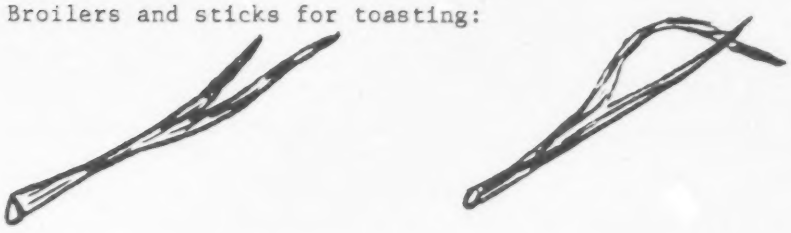
4. In boiling meat and vegetables, put a little salt in the water. Have water boiling hot before putting in meat or vegetables, unless you wish to extract the flavor, as in making soup. Always make sure you have enough water in the kettle. Remember that dried fruits and vegetables swell greatly. Rice especially swells to a surprising degree. Stir occasionally to make sure that nothing is sticking to the bottom.

5. Meat is cooked when a fork stuck through the least cooked part reveals no blood. A knife or a sliver of wood may be substituted for a fork. Vegetables are cooked when a fork can be stuck through them easily. With rice, beans, and similar small stuff it is best to taste them before calling them done.

6. Clean up. Throw all burnable waste in the fire. Burn out all tin cans, then mash them flat and bury them. Wash dishes and pots and pans before they go cold and greasy.

## Camp Cooking Helps

1. Broilers and sticks for toasting:



2. Pot hooks and holders:

3. Use a green twig to stir with a bandana or handy towel for a pot holder.

4. Smear soap on kettles for easier cleaning.

5. Fix your trench fire so that your kettles or pans rest easily without someone having to hold them.

6. Cook with the wind at your back.

7. Put a kettle on as soon as you start the fire.

8. A round fireplace is good for toasting or broiling by several people at a time, or for a Dutch oven.

9. For reflector baking build against a high bank of rocks or logs:

10. A wire screening over coals is good for roasting corn.



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11. The different types of outdoor cooking:

a. Toasting - "to brown by heat." Best done over good coals. When flaming fire must be used hold food to one side of the flames, instead of in or over them, or the food will be smoked instead of toasted.

b. Broiling - "to cook by direct exposure to heat." Broiling is a method used in cooking meat, especially tender cuts like chops or steak. It is usually done on a green stick, a green stick broiler, or on a wire rack or broiler. Broiling is best done over coals; the food should be turned often and cooked slowly. As in toasting, flames will smoke the food. Pan broiling is done in a pan (usually for meat). Turn often, pouring off fat as it accumulates, keeping as dry as possible so meat does not fry.

c. Stewing or Boiling - "to cook in water." Tougher cuts of meat are good for stew; they have more flavor, but take longer to cook. For stews, meat should be browned quickly in fat and cooked slowly in water until tender. Generally speaking, the longer the cooking, the better the stew.

d. Frying - "to brown or sear in fat in a pan." Best done over a bed of coals, since flames are likely to lick into a pan. Generally a small amount of fat is all that is necessary for frying. Draining fried foods on a paper napkin helps to get rid of excess grease. Tin can stoves are often used for frying. On-a-rock cooking is another kind of frying in which a flat stone is heated and used as a frying pan.

e. Steaming - "cooking by steam." Little or no additional moisture is added to the food, so it cooks in its natural juices. Double boilers or improvised "pressure cookers" may be made. Aluminum foil cooking is a modern day example of steaming. When clams are buried in coals or surrounded by hot pots, they are being steamed.

f. Baking - There are many ways of baking out-of-doors. One way is on the end of a green stick, as you do for a bread twist. This is a slower process than toasting, for the outside must not get cooked too quickly or the inside won't be cooked. Another way is in reflector ovens; they may be made from tin cans. Dutch ovens are also used for baking. For baking with a reflector oven, at first, try small objects like cookies, rather than whole cakes. Gingerbread mix is especially good. Try any cookie or drop cake recipe or a ready-packaged mix; recipe on box. Make cinnamon rolls or prepared biscuits.

g. Barbecues - "ways of roasting large pieces of meat over coals; a special sauce is used for basting the meat."



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## Recipes

### Basic Pancake Recipe

(serves 8)

3 cups flour
1 tsp. salt
1+1/2 Tsp.* baking powder
1 or 2 eggs
2 cups milk
2 Tsp. melted fat
grease for frying

Frying pan - individual ones are good (or tin can stoves)
Turners
Bowl or pan
Spoon

Mix dry ingredients, add eggs slightly beaten, then milk gradually, last of all melted fat. Batter should just pour from spoon.

Have pan hot and well greased. Pour spoonful on pan, cook until bubbles appear on top, then turn. The smaller, the easier for beginners to cook. Try flipping, using individual pans. When using batter for a large group, give each camper a paper cup of batter. Variation: add 2 cups blueberries or cooked rice, or 2 tsp. cinnamon and 2 Tsp. sugar.

### Brunswick Stew

2 pounds cooked ground beef
1 pound cooked lean ground pork
1 small cooked chicken, chopped
3-4 diced potatoes
1 pint kernel corn
1 cup lima beans
2-3 diced carrots
2-3 chopped onions
1 pint tomatoes or tomato juice
catsup
chile powder
salt
black pepper and red pepper
Worcestershire sauce

The vegetables may be either raw or canned. Mix everything together, and simmer a long time. If you want to can it, put in jars and place them in a boiling water bath for 1 and 1/2 hours.

### (per person) Basic Chowder Recipe (one-pot meal)

1 slice fat bacon or 1 small square salt pork
1/8 onion per person
1/2 medium-sized potato (diced)
1/4 can corn, 1/4 lb. fish, etc.
salt and pepper
1 cup liquid (water, stock or milk)
Kettle
Jackknife
Ladle or spoon

Cut bacon or pork and onions very small. Fry in bottom of kettle until brown. (Stir frequently to prevent burning. Pour off extra grease, if necessary.)

Add corn, fish or meat, with a little water, as needed. Let cook slowly until fish or meat is cooked. Add diced potatoes about 1/2 hour before time for serving and cook until done. Season and add milk just before serving, if using milk. Bring to boiling point, but do not boil.

*Tsp. = Tablespoon



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## Cabbage

1 head cabbage, chopped
salt and pepper to taste
4 tablespoons lard

Put about an inch of water in a large frying pan and bring to a boil. Put all the cabbage and lard in, season, and cover. Simmer for about twenty-five to thirty minutes.

(serves 8) **Cream Sauce** (one pot)

8 Tsp. butter or oleo or bacon drippings
8 Tsp. (1/2 cup) flour
1 tsp. salt
4 cups milk

Kettle or double boiler
Spoon
Slow fire

Melt butter (or other fat) in bottom of kettle; add flour stirring well until smooth paste is formed and mixture bubbles vigorously. Add cold milk, heat, stirring constantly until thick and smooth. Beginners may use double boiler made by 2 kettles, one inside the other; put boiling water in outside kettle. (Some expert say you can't really cook outdoors until you can make a good cream sauce over an open fire.)

(per person) **Roast Corn** (non-utensil)

2-3 ears of green corn
salt and pepper
butter

String
GOOD bed of coals
wire screening over coals for large number

Peel ears, leaving husks on at bottom, and remove corn silk. Then replace husks, covering ears, and tie around top (some people dip corn in salt water at this point.)

Have a good bed of coals in trench or round fireplace, place screening across logs or stones, just above coals and place ears on screening. Turn often, until all sides are done. Strip ears, leaving husk on the end for a handle; add salt and pepper and butter to taste. Eat immediately. May also be done by standing ears upright at sides of fireplace turning often. If you like the kernels brown, strip ears after they have steamed awhile, and finish cooking by direct exposure to heat, turning as above.

## Old-Fashioned Gingerbread

1/2 cup sugar
1/2 cup butter
1 cup molasses
2 cups flour
1/2 tsp. soda
1+1/2 tsp. ginger
1/2 tsp. cinnamon
1/2 cup sour milk
nuts or raisins if desired

Mix all ingredients together, put into a large loaf pan, and bake for about an hour. (This recipe is at least a hundred years old.)



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# ENVIRONMENTAL LIFESTYLES--

## Clues You Can Use

Developed by:

Mike Arnot
Debbie Hayes
Rosalyn Holzer
Roy Nishimoto
Dee Schnake
Bernie Windham

Environmental Action Group
With the Project Staff

December 1974

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## *WHAT IS E.A.G.?*

*While the ENVIRONMENTAL ACTION GROUP is a student government organization at Florida State University, membership is open to all interested persons for all E.A.G. activities. All members of the community are encouraged to participate and all of the services and programs are directed toward, and conducted in, our community.*

*Among the goals of E.A.G. are: 1) the creation of environmental awareness with the people of our community, 2) the prevention of environmental deterioration in Leon County, 3) the encouragement of re-use and re-cycling practices to conserve energy and resources, and 4) the support of legislation and administrative policies designed to sustain environmental quality.*

*The materials in this Booklet suggest ways which citizens of every age can help to save environmental quality. For more information about these ways or for more information about E.A.G., call the Student Government phone number at F.S.U. and someone from E.A.G. will return your call.*

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A CHECK LIST FOR ACTION -

*or goals for ecological living.*

1. SPREAD THE WORD ABOUT NEEDLESS POLLUTION AND WASTE AND TELL WHAT CAN BE DONE ABOUT IT

   a. Inform friends and acquaintances of problems and solutions. Make ecology and conservation a dinner table topic.
   b. Distribute literature.
   c. Circulate and sign relevant petitions.
   d. Write - with suggestions and criticism - to legislators, businesses, mass media, etc. Postcards or letters are acceptable.
   e. Telephone public officials and voice your opinion on a specific issue (call the Registrar of Voters for the representatives in your district.)
   f. Work to get coverage in newspapers and magazines, ads on T.V. and on radio talk shows, through community groups such as the PTA.

2. ENCOURAGE SOUND ENVIRONMENTAL POLICIES

   a. Donate money to worthwhile organizations.
   b. Give your time for constructive changes.
   c. Support political candidates who work for as well as talk about ecological balance.
   d. Patronize businesses and products which provide ecologically-superior values.
   e. Present the issues to those who can make change.
   f. Demonstrate against major polluters.
   g. Attend hearings; record proceedings; and give testimony.
   h. Start an environmental section of your social or service club.
   i. Have an ecology project for your church or school group.

3. HELP MAKE YOUR ORGANIZATION MORE EFFECTIVE

   a. Join and become active in local and national conservation, preservation and environmental groups.
   b. Do the many tasks necessary for efficient functioning.
      Typing, telephoning, mimeographing, running errands, etc.
      Visiting door-to-door, manning tables and booths.
      Researching topics, readying fact sheets, writing petitions.
   c. Prepare and disseminate information.
      With speeches, films, articles, drawings, leaflets, cartoons.
      Through street theatre, puppet shows, publications, lectures, debates. At community meetings, shopping centers, panel discussions. By conducting tours to polluted scenic areas.
   d. Organize projects and events.
      Teach-ins, bike-ins, sit-ins, marches, walks, field trips, etc.
      Fund raising, mass lobbying, field trips, etc.
      Collection stations and distribution centers to collect products for recycling.
   e. Engage in Planning.
      Start legislation for conservation and for pollution control.
      Establish ecology and conservation classes and clubs.
      Elicit support from individuals, law-makers, businesses and others.



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4. OBSERVE ECOLOGICALLY SOUND PROCEDURES AND PRACTICES

a. In the household:
   -Use fewer disposable items. Avoid styrofoam and plastic.
   -Replace paper towels or napkins with cloth ones.
   -Use china instead of paper plates.
   -Eliminate dangerous pesticides from home and garden use.
   -Compost garbage for fertilizer.
   -Grow a kitchen vegetable garden and maintain a compost heap.
   -Recycle and reuse waste items, for example:
      Convert used envelopes, letters, etc. to telephone note pads, scratch pads, etc.
   -Contribute paper rolls, discarded boxes, coffee cans, etc. to schools and organizations for use in arts and crafts activities.
   -Donate clothes, furniture, and equipment which you no longer use to charities.
   -Give newspapers, magazines, metal cans, rags, etc. to firms for reprocessing.
b. Cut down on energy resources and demand.
   -Make sure faucets do not leak and reduce car washings.
   -Use as few electrical appliances as possible.
   -Put on a sweater instead of turning up the heat.
   -Turn off lights when not needed.
c. Reduce consumption by sharing with friends and neighbors.

5. EVERYWHERE

a. Do not overpopulate - one child for each adult. If you desire more, consider adoption!
b. Do not let your pets overpopulate - get them spayed.
c. Never be a "litterbug."
d. Cut driving to a minimum, form car pools when possible.
e. Use public transportation as often as possible.
f. Switch to a bicycle.
g. Do not wear furs or skins or buy products made from endangered animal species.
h. Give environmental books and articles as gifts.
i. Participate in non-motorized sports.

6. BE INFORMED ON THE ENVIRONMENT

a. Read the major reference works on ecology and conservation; borrowing the books from the library rather than buying them.
b. Acquaint yourself with the current issues and problems.
   Newspapers and organizational newsletters and magazines provide the most up-to-date accounts.
c. Enroll in related courses.
   Check with the universities and colleges in your area. Ask about regular session courses as well as extension courses.
d. Visit affected areas.
   Inquiry to private and governmental agencies as well as the media may be necessary to determine the threatened places and polluting sources.



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HOMEMAKER'S GUIDE TO ECOLOGICAL LIVING

1. SHOPPING

a. Use a co-op if possible.
b. Do all of your shopping in one day.
c. Shop with a friend and share transportation.
d. Look for sale items.
e. Use unit pricing.
f. Buy store brands if they suit your purposes.
g. Look for items in easily recyclable materials (returnable bottles, aluminum cans and paper.)
h. Fresh vegetables and fruits are both nutritionally superior and environmentally less harmful.
i. Carry your own shopping bags.
j. Avoid aerosol cans when you have a choice.
k. Buy white paper products. Dyes are water pollutants and unnecessary.
l. Remember how special cloth napkins were? Try using them again. Make your own from recycled material.
m. Buy jelly, margarine, and other things in containers that have additional uses (glasses, refrigerator bowls, canisters.)
n. Think of efficiency (cost over time) and the amount of use you will get out of an item. It might be cheaper to rent it.
o. Look at ingredients and food additives; do you really want all that stuff in your body?
p. Visit a farmer's market or a homegrown vegetable market.
q. Consider your soap and detergent needs carefully. Is whiter than white better than clean water?
r. Avoid excess packaging - do you need a box for a bottle full of foil-wrapped candy?
s. Don't shop when you're hungry or depressed. You buy more than you need or things you don't need.
t. "Discount" outlets might be an alternative source for many items.
u. Explore possible discounts from transport and storage companies. They often have broken cases of food items and paper products.
v. Use more vegetable protein! It takes about 10 pounds of vegetable matter to produce one pound of meat.

2. ECOLOGIZING YOUR HOME

a. Landscaping:
   -Shade trees on the south and west reduce air conditioning costs. Check with an urban forester and see what native species are the best suited for your area.
   -Hedges and shrubs reduce wind; help maintain even temperatures.
b. Interior decorating:
   -Pick your drapes for their insulation qualities as well as the beauty and color they add to a room.
   -Bookcases against outside walls make an additional layer of insulation.
   -Windows form an interface for heat exchange. Tinted glass and thermal panes should be considered as replacement glass.
   -Weather stripping your doors and windows can make a tremendous difference in your energy consumption.
   -Padded wall-to-wall carpeting adds an inch of excellent



00104

insulation to your floors.
-House plants function as air purifiers, oxygen replenishers and add a touch of natural beauty. If you eat parts of them, super!
-Awnings and shades reduce the amount of solar energy coming in your window.

3. EFFICIENT USE OF HOUSEHOLD APPLIANCES

a. Gadget electrical appliances should be avoided whenever possible.
b. Refrigerator - try to minimize opening and closing.
c. Only use dishwashers when they are (1) necessary (2) full to capacity.
d. Experiment with your washer! Maybe most of your clothes will be as clean as clean with cold water.
e. Televisions, radios, and stereo appliances should be turned off when they are not being fully used. If you need company, get a gold fish.
f. Freezers are most efficient when filled to capacity. While they are "big" energy users, freezers save other forms of energy such as shopping trips.
g. Remember when turning off the lights was required behavior, not just fashionable?
h. Save hot water, shower with a friend or two or the rest of your family.

4. TIPS ON CONSERVING WATER WHEN WASHING DISHES

a. Start with an empty dish pan or sink and wash the least dirty dishes with a soapy rag or sponge.
b. Rinse these allowing water to fill the dish pan.
c. Turn off water while washing next group of dishes which have been soaking in this collected water.
d. Continue to wash in this manner until dish pan can hold no more water; then stack the rest of the washed dishes until all are washed but not rinsed.
e. Now fill empty sink with soapy dishes and allow water to run over all of them while rinsing.
f. An extra tip - you can collect this rinse water to water flowers and houseplants, also good for your outside gardens.

5. THOUGHTS ON CONSUMPTION

Think back to the last ten items you have bought --- (including food and necessities):
a. What raw materials were needed to manufacture, grow or produce this product?
b. What sources of energy (machinery, manpower hours, smelting processes, fuels, and electricity) were used to create this item?
c. Do you need this thing? Could you have bought another item using less natural resources and energy?
d. How long will it last you?
e. What will happen when you are finished with it? (1) Will it go into the garbage, and where from there? (2) Can it be recycled in your city? (3) Will it go down the drain and where from there? (4) Can it be used by a local thrift store?



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6. MORE

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a. Re-use containers at home; jars, plastic bags, cardboard trays.
b. Plastic bowls make excellent refrigerator dishes.
c. Cook your entire meal in one mode. (i.e., fry or bake or broil.)
d. Aluminum foil can be used, re-used and then recycled.
e. Plastic wrap can be used and re-used.
f. Don't leave the water running when brushing your teeth, shaving.
g. How many showers do you really need?
h. On the average, showers use less water than baths.
i. Consider leaving the plug in the bath tub when you shower. The best exchange potential of a tub full of hot water can warm a bathroom.
j. Just think of all the things you could do with a rain barrel!
k. Have your pets neutered. Unwanted pets are a tremendous waste of protein, space and energy.

00106

## HOW TO SAVE ENERGY AT HOME

We use energy to heat, cool and light our homes, cook our meals, preserve food, launder clothes, bring music and entertainment into our homes, etc., etc.

No matter where you live, or how you heat and cool your home, you can cut your bills and conserve energy - without sacrificing comfort and convenience! These are some of the ways that energy may be saved:

INSULATE. It's the number one way to save money and energy all year round.
SELECT PROPER EQUIPMENT. Correct unit size and type give the best results and the best energy economy. Get expert advice before buying.
INSPECT your equipment and have it serviced regularly. Equipment in good working order uses less fuel.
REPLACE FILTERS on air conditioners as needed for increased unit efficiency. It's an easy "do-it-yourself" job!
SET THERMOSTAT at desired temperature - then leave alone for everyday use. Frequent changes waste fuel and cause unnecessary equipment wear.
LOCATING THERMOSTATS on inside walls, free from drafts, sunlight and other heat sources, provides even and economical heating and cooling.
PUT NATURE TO WORK - Wise landscaping can form sunscreens in summer, windbreaks against winter's chill.

Your electric range is a major energy consumer. Here's how to save money, and time while preparing delicious meals:

CHOOSE THE RIGHT UTENSILS. Burner area should be the same size or slightly smaller than the pan. Flat-bottomed heavy cooking utensils give the best results.
CHECK OVEN ACCURACY every few months with a thermometer. Have faulty switches, burners and thermostats fixed promptly and professionally.
BAKE SEVERAL DISHES at the same time, it uses no more energy. . . you get two or more for the price of one.
CLEAN-UPS CAN HELP. They contribute to economical operation and correct cooking. Do not line oven with foil. . . it interferes with proper heating.
PRE-HEATING TIPS. Pre-heat oven just long enough to reach correct temperature. When using broiler-no need to pre-heat.
TURN OFF! Remember to turn off all units when you're through. A warning light or buzzer is a useful helper.
USE LITTLE WATER for most cooking operations. . .and keep the lid on the pan. Large amounts of water use more energy and lessen nutritional value of your foods. The refrigerator and freezer make it safe and convenient to store even the most perishable foods. Know how to get the most for the dollars you spend.
KEEP IT CLOSED. Frequent and prolonged door opening lets in warm air. Appliances work harder, use more power. Be extra careful in hot weather.
LOCATE APPLIANCES in the coolest part of your kitchen away from the stove, windows, water heater, washer, etc. They will last longer.
DEFROST PROMPTLY. Frost build-up of more than ¼" makes cooling units work harder; use more energy and wear out faster.
PREPARE FOOD for refrigeration by letting hot dishes partially cool before refrigeration or freezing.



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COVER DISHES TIGHTLY before placing in refrigerator to prevent frost-forming evaporation of liquid. Helps to retain flavor and nutrition, too.
KEEP IT FULL - but without overcrowding. A half-empty appliance uses more energy, because air is harder to keep cold than chilled foods and liquids.
CHECK GASKETS. Helps prevent energy-wasting air leaks. Close door on a heavy piece of paper. If it pulls out easily, gaskets may be worn.
WHEN GOING AWAY -reset temperature controls on refrigerator and freezer to a lower number (less cooling.) Since door will remain closed, food will keep cool.

A great amount of energy in your laundry can be conserved if you follow these suggestions:

LOAD YOUR WASHER CAREFULLY. Load to capacity (but don't overload.) A half load wastes hot water and energy. Use cold water instead of hot water to save energy.
DRY. . .RIGHT. Sort clothing to get the best time and temperature for each fabric. Overdrying is hard on clothes, runs up utility bills.
KEEP FILTERS CLEAN for best results. Check them before and after each use. It can make a big difference in machine efficiency.
VENT YOUR DRYER as recommended by the manufacturer. Dryer puts out large quantities of heat and moisture.
CHECK FOR LEAKS. A dripping hot water faucet can waste up to 5,000 gallons a year! Replace worn washers promptly.
LOCATE WATER HEATER close to areas where most hot water is used. Long pipe-runs are unavoidable, insulate pipes to conserve energy.
SHOWERS SAVE POWER. They use about HALF as much hot water as an average tub bath.
CHECK THERMOSTAT. Generally 140 degrees to 150 degrees is best setting for most kitchen and laundry needs. Higher settings of the water heater thermostat waste energy.

## TEST YOUR ENERGY IQ

1. With only 6% of the world's population, how much of the world's energy does the United States consume? a. 15% b. 35% c. 65%

2. What percentage of the total energy (oil, gas, coal, hydro, etc.) consumed in the United States is used in the form of electric energy? a. 10% b. 50% c. 25%

3. What percentage of our total electric energy is consumed in the home?

4. In the average home, the amount of heat lost through the roof is about _____%.

5. The least efficient air conditioner now on the market uses 2.6 times more electricity than the most efficient model. True False

6. Which home appliance is the most expensive to operate after the heating and cooling system?



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7. The aluminum industry uses 7% of our electric energy output and the steel industry uses about 5%. True False

8. Which type of lighting is more efficient? a. Incandescent b. Fluorescent

9. A frost-free refrigerator uses 50% more energy to operate than a standard model. True False

10. Microwave ovens use 75% less power than standard electric ovens for the same cooking job. True False

11. Television sets with the instant turn-on feature consume energy 24 hours a day. True False

12. The cost of energy will likely become lower during the next decade. True False

13. Proper insulation and construction practices in residential and commercial buildings could reduce the heating and cooling requirements by 40% to 50%. True False

14. What percentage of our total energy consumption could be saved by turning off ALL of the lights in the United States? a. 1.5% b. 15% c. 45%

15. A tub bath uses less energy than a shower. True False

16. Nuclear power produces about the energy comparable to that produced by wood burning stoves in the U.S.A. True False

ANSWERS:

1. (b) 2. (c) 3. (40) 4. (25%) 5. (True) 6. (hot water) 7. (True)

8. (b) 9. (True) 10. (True) 11. (True) 12. (False) 13. (True)

14. (1.5%) 15. (False) 16. (True)

## TIPS AND TRICKS TO HELP THE EARTH

1. Keep auto engine off when waiting in long lines - such as Bank Drive-in windows or Vehicle Inspection lanes.

2. Reserve one or two days out of week for shopping or errands. Don't do an errand a day. Get it all in one or two days and plan your route. Walk when you can.

3. Donate to and buy clothes from Goodwill and Salvation Army. Also appliances and used anything!



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4. Donate magazines to offices or friends so they may be read again and again and again before they are recycled. Families should share magazines and papers.

5. Get $35 converter for car and run on methane.

6. Buy non-iron clothes.

7. Don't buy electric clocks.

8. Buy and use a manual can opener.

9. Electric knives are unnecessary (and expensive.)

10. No need for electric blankets; just put on another wool blanket or additional bed clothes.

11. Small space heaters are real energy eaters.

12. Many ads and communications received in the mail and pieces of paper and cardboard obtained in wrapping and packing can be re-used as scrap writing paper or recycled.

13. Ride a bicycle for distances less than 5 miles.

14. Do not burn leaves that have been raked. They can protect flower beds or add to a compost pile. Mother Nature never intended they be raked anyway.

15. Buy a goat to keep lawn trim and make milk.

16. If you have rats, pests - do not poison - buy a cat (but have it neutered.)

17. Mend clothes and broken appliances whenever possible.

18. Do not buy canned pet foods. They can live very well on scraps otherwise thrown out and vegetable and fruit peelings. If you must buy canned pet food, recycle or re-use cans.

19. Use iron skillets and no washing is necessary. Just wipe out with damp sponge.

20. Recycle all aluminum cookware because it is unhealthy to eat cooked foods from aluminum pots. Buy iron or glass.

21. Try to cut down on unnecessary items such as window cleaner - use vinegar. Cut down on cosmetics which are unhealthy for skin, use energy and whales! There are all manner of natural cosmetics that can be made in the home. Get a book and learn to make your own.

22. Do not use any colored (dyed) paper products: tissues, napkins, towels, or stationery. Dye is harmful when breaking down in environment and dyed toilet paper causes infection in women. Use only white.

23. Car pool and support public transportation.

24. Walk - don't use elevator or escalator.

25. Call ahead. Use phone before you drive across town looking for something.

26. Turn off the lights at home and at work. Turn off business machines when they are not in use.

27. Pay bills by mail.

28. Re-cycle, re-use repair, re-vitalize, reduce.

29. Use land wisely.

30. Save the trees when developing land. Homes fit around trees.

31. Set out plants to reduce erosion.

32. Support environmental ordinances; turn in a polluter!

33. Take your own bag when shopping. Say "no bag please" if you buy only one or two items.

34. Go to the quietest place you know. Be very quiet, listen. Write down every sound you hear. Even the quietest place will produce a long list. Having to listen takes energy and can make you tired. What does noise pollution do?

35. Put white sock over your car's exhaust. Then run the car and check the sock. You will be appalled at the pollution you breathe from only one car.

## RECYCLED GIFT IDEAS

Turn your green thumb toward charming gifts for everyone.

An idea for the cook - fill a glass casserole dish with herb plants (parsley, dill, marjoram, basil, oregano, sage and chive.) The casserole goes on to delicious use after the herbs are long gone. Or use the removable, colorful plastic overcaps from empty aerosol cans, for tiny individual pots for starting herbs from seed.

For the naturalist - take an empty can and wash thoroughly with detergent and water. Then paint, antique or decoupage. Punch holes around the top and thread with raw hide or your own macrame. Fill the hanging planter with asparagus fern or trailing ivy.

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The southwest buff will appreciate a mini-cactus garden. Choose three different types of cactus and plant in a shallow, Mexican pottery dish. Or a large, yet inexpensive, glass brandy snifter makes an ideal terrarium. Line the bottom first with pebbles for drainage, then cover wel' with good planting soil. Vary the heights of the plants. Dime store ones will do the job. To give the terrarium a professional look at an amateur's cost, spread more pebbles or tiny pieces of bark around the base of the plants.

For a birthday girl - start bulbs or flower seeds in a pretty dish in plenty of time for the plants to be growing and blooming at birthday time.

For you - make mini-gardens using the caps from empty fabric softener bottles. Wash the cap, then fill with soil and plant seeds in the caps to make attractive little starting pots for the seedlings. Then transplant.

Reuse, cut down, make out of something that's already here and a gift becomes doubly valuable. A few suggestions:

Wash all empty containers thoroughly before starting project.

Empty cans can be turned into patio candleholders. Remove the plastic cap from a can. Clean the inside with detergent and water and rinse. Paste seed catalogue pages around the outside and then apply several coats of an acrylic spray. Fill with sand to weight container and prevent tipping. Shave a little off the bottom of a standard size candle for a tight fit into the opening of the top of the can.

The same goes for Christmas candles by creating a Santa face, winter scene or other holiday decorations. Paint can white, red or green. Felt and old Christmas cards glue on easily.

Bell-shaped Christmas ornaments can be created in different colors and decorations with the caps from empty fabric softener bottles. Wash cap, then paint and coat with an acrylic spray. Sprinkle with glitter or artificial snow while still wet. Or use acrylic paint to apply your own special designs and trims with a tiny paint brush. Punch holes in top of cap with a hammer and nail or ice pick and thread through wire or string for the hanger. Use these special bells to adorn the tree or a hand-made garland of pine boughs and ribbon for the front door or the mantle.

Make a wind chime with four or five spray-painted or decorated tin cans (soup, vegetable or fruit cans). Remove the entire top of the can with a can opener. Punch a hole in the center of the can bottom through which string, rawhide or macrame can be attached. Use a dowel pin on which to tie the cans and suspend at varying lengths.

Delight the indoor gardener with a personalized watering can. Use acrylic paint to coat or decorate an empty plastic bottle and top it with a hardware store nozzle used for sprinkling clothes.

Boot trees grow from two or three empty soft drink cans that are stacked and held together with wide masking tape. Or use bits and pieces of adhesive plastic covering. Make a pair to keep boot tops in an upright position. Cut ads and pictures of boots and shoes from magazines and catalogues and paste

decoratively around the trees for when they are standing bootless.

For the birds make a feeder from an empty half gallon milk container. Wash and rinse the carton and restaple or tape the top back to its original closing. Use a sharp knife or scissors to cut a rectangle opening on one side. Allow a one inch margin on all sides of the opening so birds can perch on the bottom edge or enter to get out feed. The feeder can be covered with self-adhesive decorative paper. Punch a hole in the top and thread string or wire to attach the feeder to a tree limb.

Gifts from nature are appreciated and costless. Make wall plaques by gluing seashells on pieces of wood in attractive arrangements. Use wood found at the beach for the weathered look or finish ordinary wood plaques with paint, shellac or varnish.

In the autumn, collect dried weeds, flowers and leaves that can be artfully arranged on a burlap background, sewn or wired on. Hem the top and bottom of the burlap piece to hold dowel pins for a wall hanging.

Dip the edges of pine cones in white paint and sprinkle with artificial snow or glitter while paint is wet. Glue on a hook to hang from the Christmas tree.

Or glue mini pine cones, acorns and nuts on small wood discs for place card holders or just for a thing of nature to enjoy. Coat with an acrylic spray for gloss and protection.

A large rock painted in acrylic paint to match the zodiac sign of the receiver makes a decorative door stop or paper weight.

An ordinary wooden box can be made into a variety of attractive and useful gifts by painting and designing with stencils. It can be as simple or as elaborate as your talents permit. Paint the base coat and outline the patterns with stencils from a craft shop or ones you draw yourself. Paint in the patterns by hand, getting shading by dipping the brush in two colors of paint at one time.

Dye a piece of muslim your favorite color and stretch on a frame. Paint an original design or copy from a magazine for the look of a hand-crafted batik.

An unfinished, small wooden parsons table can be purchased inexpensively. Measure out a checker board top and paint squares in black and white. Finish with varnish and wax. Get a dime store chess or checker set to go with the table for the gamesman.

ALUMINUM RE-CYCLING

WHY?
1. Re-cycling conserves valuable natural resources, fights inflation by holding down the price of aluminum, and adds the balance of payments problem, since so much aluminum is imported.
2. Re-cycling conserves energy, since making aluminum from re-cycled cans saves 95% of the energy needed to produce aluminum from ores.
3. Re-cycling tends to reduce litter and solid waste disposal problems.



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HOW? Individuals and institutions may arrange to save aluminum cans and foils in plastic bags until enough is available for delivery to a re-cycling operation. Rinsing cans before bagging makes for more sanitary storage! Apartment complexes, neighborhood family groups, dormitories, company and government office buildings, etc. may band together to save large quantities for re-cycling.

WHERE? The Tallahassee Junior Museum is one re-cycling effort, where your waste aluminum is turned into natural habitats for Museum animals.

On Tuesdays the Reynolds Aluminum Company buys aluminum from 9:00AM to 4:00PM at 15¢ per pound. Their truck is located in the Tallahassee Mall behind Ward's.

PAPER RE-CYCLING

WHY?
1. Re-cycling paper saves the lives of trees!
2. Re-cycling tends to reduce pollution, conserve energy, and fight inflation.
3. Re-cycling papers helps us each to remember our rightful place in the natural order of things, and to fight the amount of waste resulting from our current lifestyle.

HOW?
1. Save newspapers, magazines, and other paper from your household, bundle, and deposit with E.A.G. collection boxes around town.
2. National Recycling Systems and American Recycling Company buy paper in large volume. Work with E.A.G. to get companies, state and local government, and educational institutions to re-cycle waste paper (i.e., computer cards and print-out sheets, etc.).

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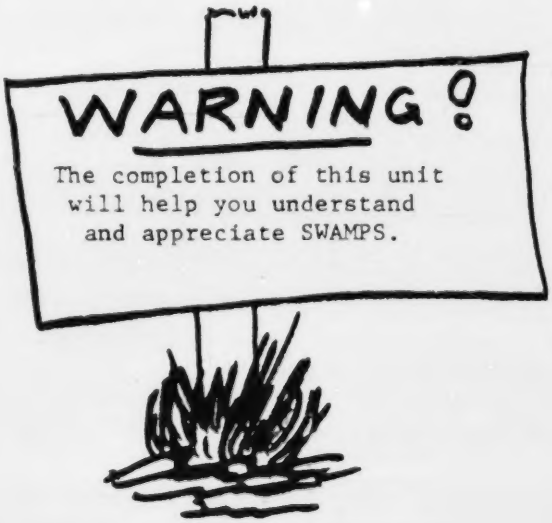
# SWAMP EXPLORATION: pre, post, and fieldtrip experiences

This is a middle school experience prepared by:

Kurt Phifer
Gail Hazzlett
Mary Turino
of the Junior Museum staff

and Shirley Eikeland,
ESEA Title III Project

with a little help from the
Project staff



OVERVIEW

There are five pre-field trip activities: 1) a film strip, 2) gathering and making equipment, 3) a crossword puzzle, 4) learning about the nutrient cycle and 5) some creative reflection activities. There is no special order for doing the activities. The important thing is that you do the activities so the students will be properly prepared for their day at the Museum. In addition to the activities in this booklet, careful planning for the field trip will help to make the day more rewarding for you and the students. The students should be able to make some of the necessary arrangements. Let them help!

The day at the Museum gets the students into the swamp (expect some wet feet). They will identify organisms, look for producers, consumers, and decomposers, and look for evidence of nutrient cycling.

There are numerous suggestions of classroom follow-up. The nutrient cycling activity can continue for up to three months after you return from the Museum. The role playing game can help use up excess energy on a fidgety day. There are also numerous ideas for projects. You may wish to add your own ideas.

Let the Junior Museum staff know how the activities work. They welcome your feedback.

PREFIELD TRIP ACTIVITY ONE: Viewing "Swamp Survival Ecosystem" *

A filmstrip available on loan from the Junior Museum. A cassette tape is available to use with the filmstrip. If you choose not to use it or want to review the material ahead of time you can use the following frame by frame descriptions.

1. Swamp Survival Ecosystem (Title Frame)

2. (Credit Frame)

3. Hawks, swarms of mosquitoes, alligators. . . mysterious shadows, and oozing mud - the swamp is an ominous but exciting ecosystem. The most important part of any swamp is its water, the water that flows slowly and continuously among the plants.

4. Swamps differ from bogs and marshes. The swamp has trees, shrubs, and other layers of plants, instead of just grasses or mosses. And the shallow water constantly flows, even though the movement might be so slow that the swamp seems like a lake.

5. The Junior Museum Swamp is found in Tallahassee, Florida.

6. Trees and branches cut and stacked by beavers can almost halt a stream's water flow within a period of a few years. Did you know beavers live in Florida? The result could be a swamp, a place where the water seems to stand and never drain away. Also, water flow might be dammed by shifts in the earth's surface.

* Singer Education and Training Products by The Society for Visual Education, Inc., Copyright 1974, Chicago, Illinois.

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7. Everything from microscopic algae plants to tall, full-grown trees flourish in the swamp's plant community. Plants sometimes cover the water's surface, hiding the water with a green blanket.

8. The plants have adapted to the swamp - that is, the plant bodies can grow under the swampy conditions of ever-present water. The plant roots are suited to being surrounded by water, or by very wet soil.

9. Duckweed is one of the common plants in the Junior Museum Swamp. Millions of these tiny plants can grow wherever water flows slowly. A turtle cannot even crawl out of the water without carrying some duckweed on its back.

10. Duckweed floats on the water. The plants have very short, hairlike roots that dangle in the water, and they are the smallest flowering plants known. Their flowers can hardly be seen.

11. Other swamp plants called arrowheads raise their leaves above the water's surface. These are called emergent plants. Instead of floating in the water, arrowhead plants are rooted in the soft mud on the swamp's bottom. The roots are adapted to the water-soaked conditions, where many other types of plants would die and decay.

12. Arrowhead flowers attract swamp insects that, in turn, distribute pollen from one flower to another. Since the swamp has quite a few flowering plants, the arrowhead must stand out in order to attract the insects' attention.

13. The wild iris is another flowering swamp plant. The iris grows in very shallow places in the swamp. It has a thick, fleshy, underwater stem which stores food energy.

14. Some plants get their food energy another way. This plant is a mass of yellow vines that entwine themselves among the green plants of the swamp.

15. This plant is a plant <u>parasite</u>. A parasite is an organism that lives and feeds on another organism. Parasites do not produce their own food.

16. A parasite may use rows of suckers to cling to a green plant.

17. The plant on which a parasite lives is called the host plant. The host plant does not get anything from the parasite. The host is harmed since the parasite gets its food from the host and gives nothing in return.

18. The green plants of a Florida swamp thrive in almost tropical conditions. In Florida, cold winters do not strike as hard as they do in Illinois.

19. Cypress trees are the dominant plants in the Florida swamp. The cypress has its base and roots submerged below the swamp water, and is well adapted to the watery conditions of the swamp ecosystem.

20. The spider lily in the Florida swamp is a close relative of the wild iris in the Illinois swamp. The lily has a bulb-like root, found in the mud under shallow water.



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21. Plants like the pineapple air plant do not even draw their moisture from ground water. Instead, they grow in trees - on trunks or in branches.

22. Pineapple air plants are highly adapted to the swamp. They're called epiphytes. Epiphytes are plants that grow on other plants.

23. Epiphytes are not parasites. They do not harm the trees in which they grow. Their roots either take moisture directly from the air, or from puddles that collect in the tree branches.

24. Spanish moss is an epiphyte commonly found in the Florida swamps. The moss looks like long, scraggly hair. It hangs from trees and grows downward.

25. Spanish moss grows flowers and seeds like many food-producing plants that root themselves in the ground, but Spanish moss has no roots of its own.

26. Adaptations by swamp herbs and shrubs include broad leaves to catch the sunlight that filters through the taller cypress trees. The green plants serve as food for a great number of first order consumers - animals that eat green plants.

27. The grasshopper is one of the swamp's first order consumers. A grasshopper eats the leaves and stems of plants. In great numbers, grasshoppers can devour entire plants, and even entire plant communities. Grasshoppers serve as food energy for meat-eating animals - second order consumers.

28. The dragonfly is a second order consumer in the swamp. A large dragonfly often feeds on large insects such as grasshoppers. Dragonflies are adapted to the water-soaked swamp in a very special way.

29. Dragonfly naiads hatch from eggs which were dropped into the water. There they spend the first part of their lives feeding on small animals in the swamp. Naiads eventually climb out of the water, shed their skins, and dry off, becoming adult dragonflies.

30. Frogs occasionally feed on dragonflies. Frogs and dragonflies are predators. A predator is an animal or plant that kills its food before feeding on it, or while in the process of feeding on it.

31. The little blue heron is a predator, too. Able to stand above the shallow swamp water on its long legs, the heron stabs out at frogs, spiders, and insects, killing them all for food. Animals killed and eaten by a predator are called prey.

32. The alligator is an eager predator. It finds a great number of prey in the swamp. An alligator is liable to attack almost anything for food, so other animals must be constantly on guard.

33. The alligator can submerge in the swamp water so that not much more than its eyes break the water's surface. It looks like a log. By tucking up its legs and moving its body and powerful tail, an alligator propels itself swiftly toward any prey it might spot in the water or along the shore. It can digest almost anything, even hard turtle shells.

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34. The alligator's stomach can even digest poisonous snakes. If a snake is in or near the water, an alligator will not hesitate to eat it.

35. Raccoons and other small animals along shore have no guarantee of safety, either. Alligators not only prey on turtles, snakes, and raccoons, but also on ducks, wading birds, fish, . . .

36. . . . and even other alligators. Because alligators grow to such large sizes and look so frightful, they have given the word predator a sinister meaning. Yet, a predator is ANY consumer that kills its prey.

37. A lettuce lake in a Florida swamp holds a number of predators. They are part of an underwater food chain. In a clearing, plenty of sunlight falls on the water lettuce plants.

38. As in all living communities, the food energy begins with the green, food-producing plants. In this case, the plants are mostly water lettuce and duckweed. The plants convert the sunlight into food energy that helps them grow.

39. As the green plants die, they sink to the swamp bottom. Mosquito larvae feed on the decaying plants. The larvae, called wrigglers, are first order consumers.

40. The small mosquito fish are the first predators of the food chain. They feed on the mosquito larvae, and grow to about five centimeters in length.

41. Then the long-nosed gar fish attacks and eats the mosquito fish. The gar fish is the second predator in the food chain. But even gar fish aren't safe. . . .

42. The alligator is the end-of-the-line of predators in the food chain. Although scavengers and decomposers will eventually feed on the alligator when it dies, they will not kill it. So it is the last predator of this food chain.

43. In the underwater food chain, the sun's light energy becomes food energy produced by the water lettuce. The wrigglers are the first to consume the food energy, then fall prey to the mosquito fish. The mosquito fish, the gar fish, and the alligator hunt and kill their food - they are the predators. All but the alligator fall prey to a larger animal. Eventually, the alligator, too, will die.

44. In a swamp, the death of one animal means life to another. Predators often become prey.

45. Survival for plants and animals depends on many adaptations. The living organisms of the swamp - including all the trees, wildflowers, parasites, epiphytes, predators and prey - are adapted to life in the shallow, slow-moving water, the oozing mud, and the heavy moisture in the air. The living organisms and non-living environment are all part of the unique and fascinating swamp ecosystem.



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PREFIELD TRIP ACTIVITY TWO: Gathering and Making Equipment for Swamp Exploration

Unless we take our atmosphere with us, we cannot spend an extended period of time under the water to observe what lives there. Therefore, we must do the next best thing: take a sample(s) from the water and observe it in our own (dry) environment. Please consider how water life can be investigated without causing it any harm. Care should be taken whenever a plant or animal is being studied. If possible, the plant or animal should be returned to its source unharmed after observation is completed.

Before you come on your swamp trip, you will need to gather and make some equipment:

1. Spoons and clear plastic cups - These are useful for moving small plants and animals and observing them at close range. Simply dip up tiny life with a spoon and place them in a cup partially filled with (reasonably clear) water.

2. Small clear jars with covers punched with holes - These are for carrying samples found at the observation site back to the classroom for further study.

3. Hand or Dip Nets - Aquarium nets or a very fine mesh strainer will work fine, or you may want to make your own net. It is possible to extend the reach of an aquarium net or strainer by attaching a piece of dowling or something else to the handle. A gradual, gentle scoop of the net is the most successful and least damaging motion for collecting tiny plants and animals. Never raise the nets above eye level. This will prevent eye accidents.

4. White-bottomed containers - These must be purchased or brought from home. (White dishpans or something similar work well.) The white bottom makes it easier to spot organisms living on the plants, and in the mud and debris of the water bottom. Dump dredged-up plants or mud and debris from the pond into the pan and examine the pieces one-by-one for eggs, animals, and other water life.

5. A plankton net - A plankton net is used for collecting minute aquatic organisms for close observation. These organisms are easily overlooked in water samples and pass through standard dip nets. The plankton net is a cloth funnel which allows water to pass through but holds small organisms. The small organisms are washed down into the clear vial at the bottom of the funnel. To make a plankton net you will need:

   1 Metal embroidery hoop (about 15 cm. in diameter)
   1 Piece of old bed sheet
   1 7 dram (approximate size) vial (old pill vials are fine)
   2 Pieces of #20 wire, each 10 cm. longer than the diameter of your hoop
   1 Tow line (about 6 meters long)
   1 Rubber band



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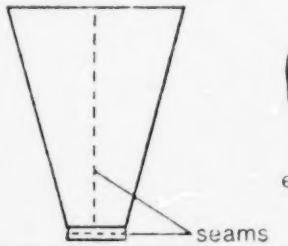
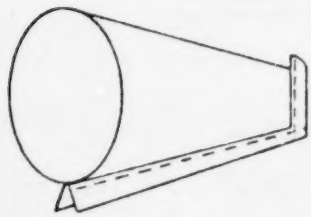
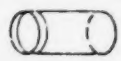
a) Sew the cloth cone.

The net is a cone of old bed sheet material as wide at the top as your embroidery hoop, and as narrow at the bottom as your vial. A couple of measurements and a trial or two should be sufficient to give a suitable pattern from which any number of nets can be made. Two seams are needed: one at the vial end to keep the material from unraveling, and one up the side to make a cone.*

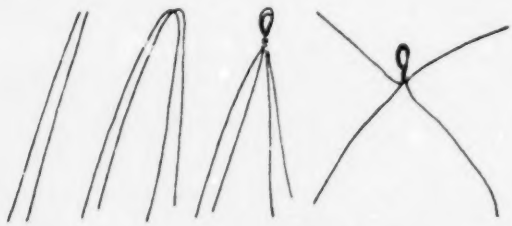





b) Prepare the wire yoke.

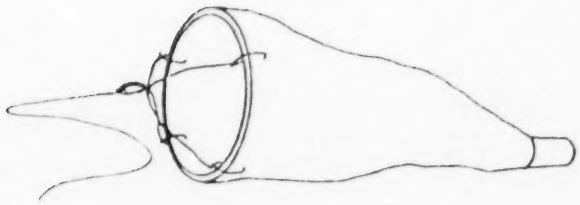
Using a pair of pliers, if necessary, twist the two wires together as shown. Be sure to leave an eye at the center to attach your tow line.



c) Assemble your net.

Fix the net in the embroidery hoop. Attach the wire yoke to the hoop-net combination by pushing the wire through the cloth and twisting each wire around the hoop.

*OBIS (Outdoor Biology Instructional Strategies) Berkley, California: Lawrence Hall of Science, 1973.



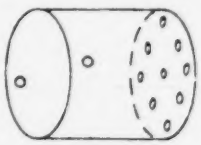
Drop the vial in from the open end and secure it with a rubber band. Attach a tow line to the eye of the yoke, and your net is ready.

d) To use a plankton net, toss it underhand into the water and either pull it in hand-over-hand, or pull it out by moving away from the edge of the water. Make five or more passes to concentrate the surface life before examining the plastic holding vial. Be careful to keep the net off the bottom.

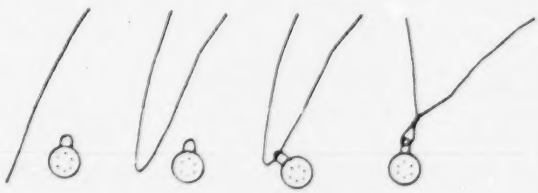
6. Bottom Scraper - A bottom scraper is used to bring up a sample of bottom mud and debris for close examination. It can be used in shallow or deep water, provided a tow line of sufficient length is used to keep the scraper traveling along the bottom. To build your own bottom scraper you will need:

1 Empty can (any size will do)
1 Piece of #18 or #20 wire 5 cm. longer than the diameter of the can
1 8oz. fishing weight, or other convenient weight
1 Nail and hammer to make holes on the bottom of the can
1 Tow line

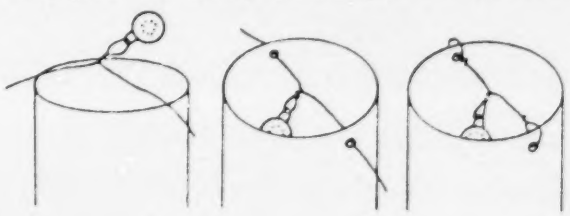
1. Punch holes in the can: several in the bottom, and two holes on the side of the can near the top, one directly across from the other.



2. Now fasten the fishing weight (8oz.) to the center of the wire with a few twists. If you twist the wire so that a big eye hole remains, you will have a convenient place to attach a tow line.



3. Pass the two ends of the wire through the two holes you punched at the top, center the weight in the middle of the opening of the can, and twist the ends of the wire securely. Tie on the tow line and you are ready to sample the bottom of a pond.





00122

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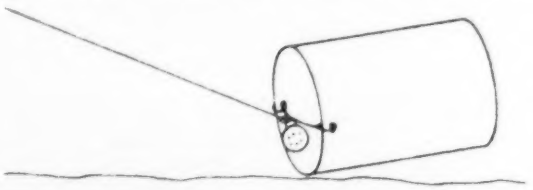
4. To use the scraper, toss it underhand into the water and slowly pull it in. Filter the contents through a net or sieve to separate organisms.

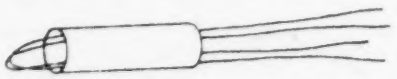


7. Weed Grapple - Submerged plants and other debris not easily reached from shore can be collected by using a weed grapple. To make a weed grapple, you will need:

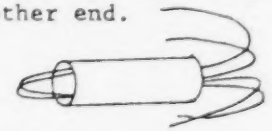
1 6 to 8cm. length of pipe, 1 to 2 cm. in diameter
2 Coat hangers
1 Tow line (about 2 meters of thin nylon rope)
1 Pair of pliers for bending the coat hangers into shape

1. Separate or bend the two coat hangers into two long pieces of equal length.

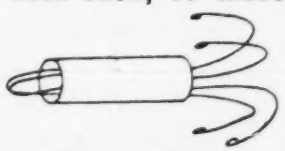
2. Bend the wires in half and insert both of them into the pipe so that the bent ends stick out a little from one end of the pipe. The tow line will be attached to these loops.



3. Bend the unlooped ends of the coat hanger lengths to form a four-pronged hook at the other end.



4. Bend the end of each hook back, so there will be no sharp ends exposed.



5. Attach the tow line to the bent hanger loops, and your weed grapple is finished.

6. When using the weed grapple, be careful to use a low, underhand toss to avoid hitting another person. Also remember to hold the free end of the tow line, so you won't lose the grapple.



00123

PREFIELD TRIP ACTIVITY THREE: Understanding Swamp Vocabulary: Crossword Puzzle

Give the students the following words and their definitions to use as they do the Crossword Puzzle.

a) Producers - Green plants that provide food for all the higher forms of life.

b) Consumers - Organisms such as fish, and man, whose nutritional needs are not met by feeding on the producers or other consumers.

c) Decomposers - Organisms such as fungi and bacteria that break down dead plants and animals into substances that can be used as food by the producers.

d) Food chain - The process whereby each form of life provides food for every other form of life. Example:

man
↑
bird
↑
fish
↑
green plant
↑
sun

e) Ecosystem - A community of organisms interacting with its living and nonliving environment.

f) Nutrients - The substances contained in plants and animals upon which all life depends.

g) Habitat - The place where a plant or animal lives.

h) Swamp - A low area usually covered with water, in which trees grow.

i) Cycle - The transfer of materials in orderly steps until the material returns to its original state.

SWAMP PUZZLE

Use the vocabulary list to complete this puzzle. (Puzzle on page 11)

ACROSS
1. Cypruss Tree
3. Wheat-Pizza-Man
5. Gator's Habitat
7. Protein, Carbohydrates, Fats

DOWN
2. Rabbit
4. Mushroom
6. Producer→Consumer→Decomposer
8. Home



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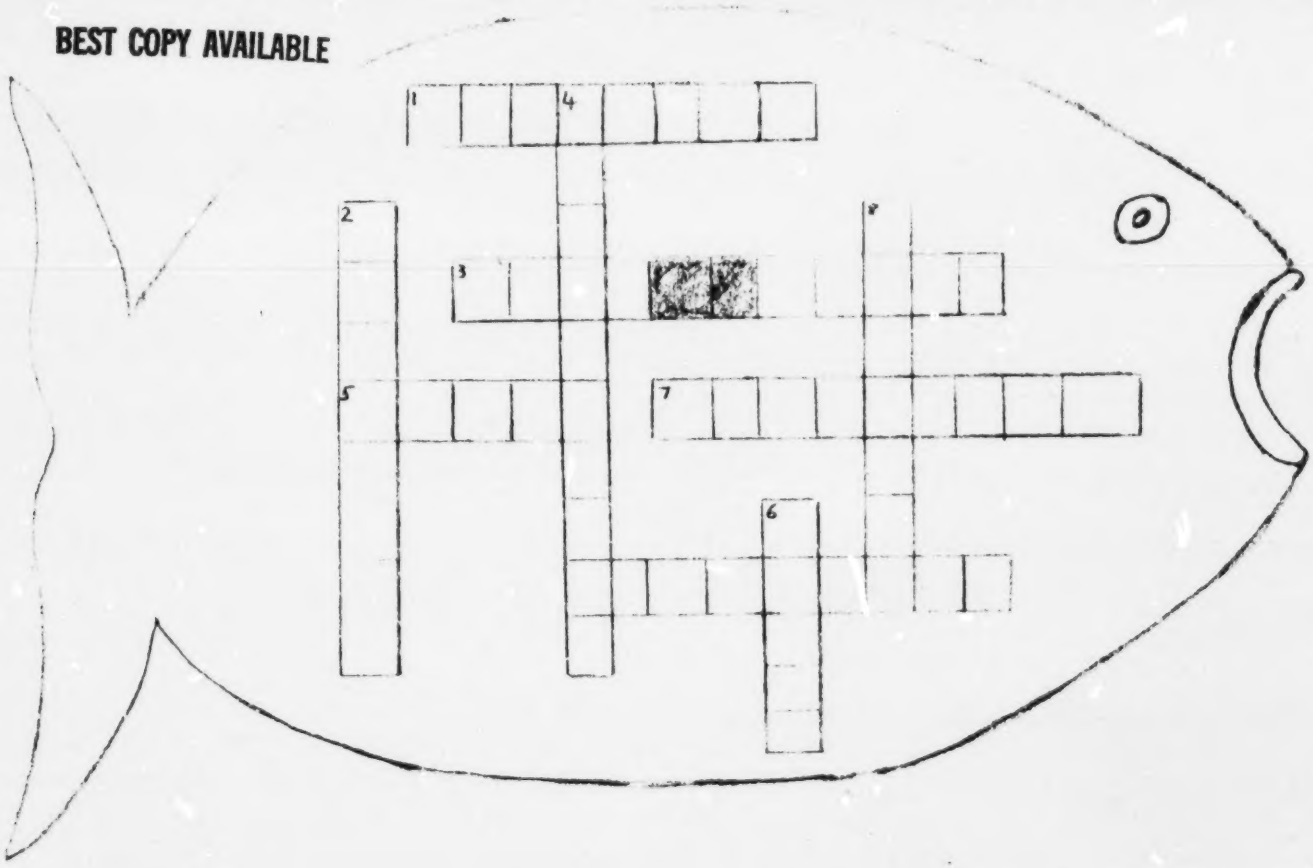
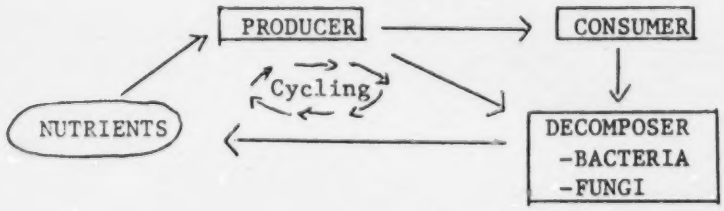


PRE-FIELD TRIP ACTIVITY FOUR: Learning the nutrient cycle

Using the vocabulary developed in Activity Three, students should learn how the nutrient cycle works. Put the diagram below on the board and explain how organic material is broken down by decomposers (fungi and bacteria) into basic nutrients (nitrogen, phosphorus and potassium, etc.). These nutrients are then absorbed by growing plants called producers. The producers are eaten by herbivores (planteaters) such as grasshoppers, deer, and rabbits. These animals are called consumers. When consumers die and decompose the nutrient materials in their bodies then become available for plants again. Hence nutrient cycle.

Nutrient Cycling Diagram




Nutrient Circle Activity

Further demonstrate the cycle by having all the students divide into groups of four. Each person will become a producer, consumer, decomposer, or nutrient. Let the children decide what particular plants or animals they want to be. Each person will then make a tag and pin it on himself.

| Algae (producer) |
|---|



00125

Finally have the 4 students join hands in the proper order to form a Nutrient Circle (Cycle).

PREFIELD TRIP ACTIVITY FIVE: What do you think a swamp is?

A. Draw a picture describing your thoughts when you hear the word SWAMP.

B. Write five adjectives you would use to describe a SWAMP.

C. Name ten nouns you would expect to use when writing a story about a SWAMP.

FIELD TRIP ACTIVITY ONE: What lives here?

Equipment: "Swamp Organisms" Appendix, plankton nets, bottom scrapers, weed grapples, jars, dip nets, white bottomed containers (dishpans).

1. Have teams explore the swamp in general and select a particular study site.

2. Call teams back to an agreed on meeting place for a short discussion and demonstration:

   a. Distribute "Swamp Organisms" (Appendix 3) and review the characteristic of the organisms.
   b. Demonstrate the use of plankton net, bottom scraper, weed grapple, and dip net.

3. Encourage the teams to return to their study sites and collect as many different kinds of plants and animals as they can. At the end of the collecting time place the organisms in the white bottomed containers so participants can see what was found.

   The following questions should be discussed:

   a) How many different plants and animals were found?
   b) Which plant was most plentiful? Which animal?
   c) Which plant was least plentiful? Which animal?
   d) Who found a plant or animal that no one else found? Describe its habitat. How was it different from the other areas investigated?
   e) Is this swamp richly or poorly populated with life?
   f) What larger life forms found in and near the swamp depend on the plant and animal life you found to exist?

4. Put some specimens in jars to study further in the classroom. The organisms collected with the plankton should be observed through microscopes.

FIELD TRIP ACTIVITY TWO: Finding Producers, Consumers, and Decomposers

Equipment: Strainers, magnifying glasses, jars

1. Take 5 minutes to review the vocabulary to make sure class will understand the terms you are using.

2. Ask class to think about this question during their visit to the swamp: "How good is this swamp to man?"

3. Go down to the swamp and point out what plants and animals are visible. Why aren't more visible?



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4. Divide the class into 3 groups to find producers, consumers, and decomposers in the swamp and its immediate area. Each student should have a magnifying glass, a strainer and a jar.

5. Bring 3 groups together and discuss the findings. What part of the pond was each group of organisms mostly found in? What would happen to pond life if there were no more producers? No more consumers? No more decomposers?

FIELD TRIP ACTIVITY THREE: The Nutrient Cycle

Nutrient cycling is a long process and difficult to see on a single trip to the swamp. Students are encouraged to take samples of materials back to class with them and watch the process in the classroom. Using baby food jars or other suitable containers students can gather the materials needed to observe the process of decomposition.

A. Direct each team to:

1. Find direct evidence that decomposition is occurring and show this evidence to the class.

2. Find evidence of a consumer being decomposed.

3. Find evidence of nutrient uptake by producers. Explain this evidence to the class.

4. Construct a nutrient cycle using materials found at the study site. Explain this cycle to other teams.

B. Direct each team to: (This material will be used for post-activity #1)

1. Fill one jar with bottom detritus and swamp water.

2. Fill another jar with leaves and swamp water.

3. Fill a third jar with just leaves.

Cover the jars tightly, label them and bring them back to the classroom.

POST FIELD TRIP ACTIVITY ONE: The Nutrient Cycle

Each team should store their three jars in a safe place in the classroom. Teams may wish to examine the effects of various environmental factors on the materials (Ex.: temperature, light, air) or they may wish to leave the experimental materials as they are.

At approximately one week intervals the materials should be examined for:

1. Amount of decomposition (estimated percent)

2. Rate of decomposition (which is faster)

3. Forms of life present in a drop of water (microscopic examination)

4. Other observations

After 12-15 weeks of observations, students should use their notes and write a report and discuss their findings. Groups manipulating environmental factors should be encouraged to compare their results with groups that did not.

Questions for Students

1. What would happen if aluminum foil or a plastic bag had been placed in the jar instead of leaves?

2. What would happen if some jars were left open and others were closed? Would one be faster than another in its rate of decomposition? Why?

3. What would happen if there was no bacteria or fungi in the swamp?

4. Why are decomposers important to man? Do you eat any decomposers? Would a decomposer be a producer if you ate it?

POST FIELD TRIP ACTIVITY TWO: Role Playing

"The Ups and Downs of Life in the Swamp"

Equipment: 4 different colors of yarn or ribbon
whistle

This game should further demonstrate and reinforce the idea of a food web and the interdependence of swamp organisms. Each child will be a swamp organism. The organism will reproduce, be eaten, or eat other organisms. The frogs eat the insects, the snakes eat the frogs, and then the insect population increases. The Ups and Downs of the Populations will occur through the acts of the play.

Inside

Inside the classroom count off the children and hand out the yarn. Have children tie the colored yarn around their wrists and this will tell what organism they are.

| Approximate Total Number of Children | Organism |
|---|---|
| 15 | Insects (herbivores) |
| 5 | Insects (insectivores) |
| 5 | Frogs |
| 2 | Snakes |
| 1 | Hawk |

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Explain to the children that you will tell them a swamp story and that they will participate. All children will sit and observe except during their part. The teacher will tell them when to participate. The whistle means everyone should stop and listen.

Outside: Role Playing

Set boundaries and then begin the story. At each whistle blow count the organisms and record the totals.

1) There are ten insects sitting on lily pads or flying around an imaginary swamp. Eight insects are plant eaters (herbivores); Two eat other insects (insectivores.) (Two insects chase the others until whistle blows. Those caught are dead and so out of the play.)

(Whistle...after no more than 2 insects are caught.)

(Count organisms and record.)

2) Two frogs enter scene and hunt insects for their dinner. Insectivorous insects still hunt other insects.

(Whistle when some insects still remain.)

(Count organisms and record.)

3) Insects reproduce = 3 more insects
Frogs reproduce = 2 more frogs

Two snakes enter. Snakes chase frogs, frogs chase insects, insectivorous insects chase herbivorous insects.

*Send in the rest of the insects just before you blow the whistle. The result should show that as the snakes eat the frogs, the frog population decreases and the insect population increases.

(Whistle before any population is wiped out.)

(Count organisms and record.)

4) Reproduction - bring in all remaining organisms. Let the hawk kill its prey (snakes or frogs) for a short time. Remember all the other organisms continue to eat also.

(Whistle)

(Final organism count - record.)

Possible things to do as follow up:

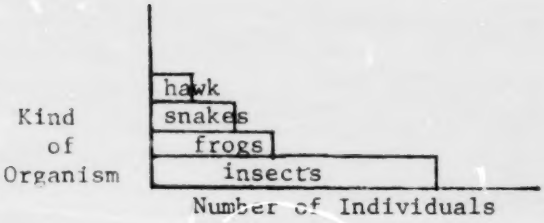
1. Make line graphs to show population changes. Discuss graphs.

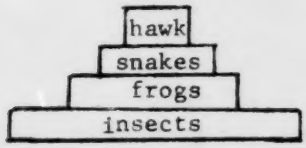
2. Make a horizontal histogram for numbers of organisms living at the last stage of the game. Put the smallest number on top and the largest on the bottom. Note Diagram.



00129

Population Comparison




Another view of the histogram shows a numbers pyramid.

3. Put following labels on histogram:

   1st order consumer, 2nd order consumer, 3rd order consumer, 4th order consumer.

4. Discuss how the "animals" felt when they got killed.

POST FIELD TRIP ACTIVITY THREE: Et cetera

Directions to teacher: Children could choose whatever activities interest them. You might write each one of these activities on a 3 X 5 card. Then the students could survey the ideas easily. They might even want to create their own activity card idea.

1. Make a group sketch of the different kinds of plant life in the pond, from the submerged plants up to the trees.

2. Make a chart of the swamp and the area around the swamp showing the habitat of each animal.

3. Bring water samples back from the swamp. Borrow a microscope, and compare the samples with water from the school faucet. What do you see that is different?

4. Discuss what would happen if the swamp were to dry up; or if it were to flood for a long period of time. What would happen to the plants and animals living there?

5. Give each student a sheet of drawing paper to sketch and describe one plant or one animal observed at the swamp.

6. Given a microscope and slides, each team should investigate water samples from the swamp. Teams should list or sketch their discoveries. A portion of each sample should be reserved to examine on subsequent days. Has the amount of observable life become more or less or stayed the same?

7. Compose a short poem about one of the following things observed at the swamp site: (1) a plant, (2) an animal, (3) the water, (4) the swamp itself.



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8. Compose a poem or limerick using one letter from the word SWAMP to start each line:

S _____
W _____
A _____
M _____
P _____

9. Create an oral class story about the swamp. The teacher may start it off with something like: "Today started off as a typical day in the swamp and . . ." Each student must contribute a sentence to the story based on swamp observations (with imagination thrown in for good measure!)

10. Play a game as a class. Each student must name or describe a plant or animal observed in the swamp - those that can't are "out." The last person standing is the winner. A variation would be to divide into 2 teams or several groups - the one team or group able to name the most plants and animals wins.

11. Write a descriptive paragraph - "The First Time I Visited a Swamp." Draw pictures to go with it.

12. Make up a crossword puzzle. Try it out on other students.



00131

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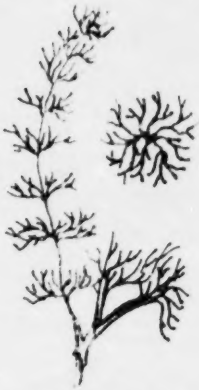
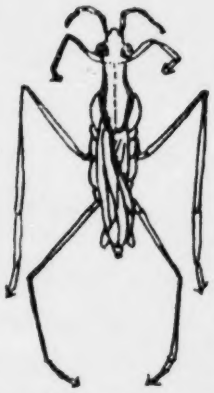
# SWAMP ORGANISMS*

Elodea densa
Waterweed



Ceratophyllum echinatum
Hornwort

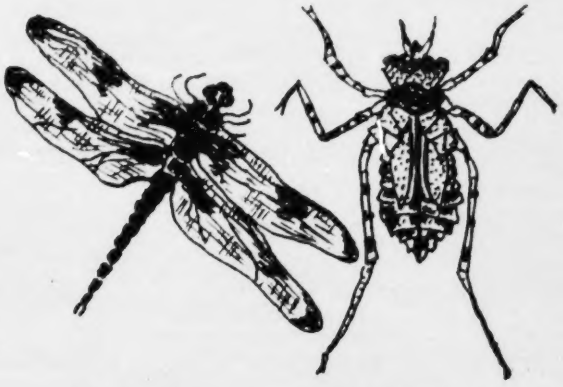
Belostoma sp.
Giant water bug



Gerris sp.
Water strider

Sagittaria sp.
Arrowhead

Typha latifolia
Cat-tail



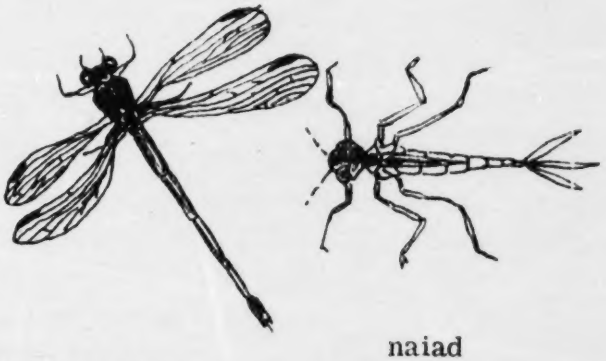
Macromia magnifica
Dragonfly

naiad

Sparganium sp.
Bur-reed

Lemna sp.
Duckweed

Nymphaea odorata
Water-lily



Enallagma sp.
Damselfly

naiad

*Illustrations reproduced from ESEA Project, DOE #050-72003, Broad Spectrum Environmental Education Program, Brevard County.



00132

# THE FARM AND I . . . . . .

PERSONAL DISCOVERY AT THE PIONEER FARM,
TALLAHASSEE JUNIOR MUSEUM

prepared by

Sang-Ho Kim
Percy Gambrell
Jack Jones
Tom LoGuidice
Sylvia Anderson
Yolanda Hanna
Robert West
Craig Nelson
Kit Bieschke
Ricky Keith

A visitor may view the pioneer farm at the Tallahassee Junior Museum as a quaint relic from grandpa's day, or as a source of "facts" about history. Neither view is very useful as an educational experience. To be useful, the visitor must not only look at the farm and its "contents," but he/she must look at self as well. Learning consists of more than looking at WHAT lies out there. It ought to involve reflection upon SO WHAT--the meaning and evaluations one makes of what's out there and why one makes those meanings and evaluations. It ought to lead to action (NOW WHAT)--some way of behaving, thinking, feeling, and/or valuing which is somehow different and richer because of the visit to the pioneer farm and because of the thought processes such a visit evokes.

If we are not somehow different and richer, why call the farm "educational"; in fact, why have it at all?

The model on the next page offers a way to process a pioneer farm experience to make one's self and others different and richer. Suggested activities follow.

# EDUCATIONAL ENTRY POINTS FOR COPING WITH ATTITUDES AND FEELINGS

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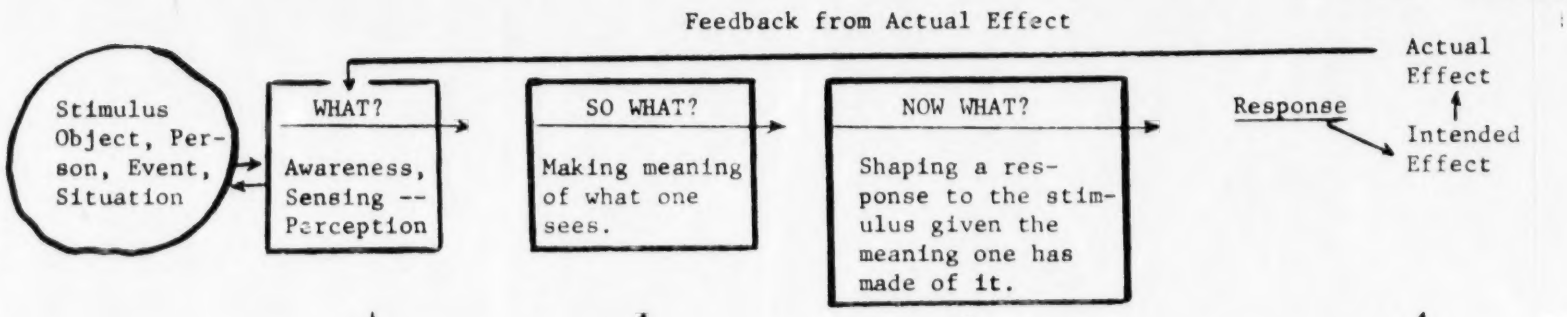


Educational Entry Points

How do I see this "object?"

How do I see what is going on in this situation?

What affects my perception?

How do I make sense of what I see?
- my needs and motives?
- my past experiences?
- my culture, parents, peers, etc.?
- my knowledge of self and others in such situations?
- my past pleasures and pains, my life goals and hopes for the future

What do I want to happen here? How do I want to present myself to the world? And to my self?

Is my intended response fair, reasonable, responsible? Is it appropriate to the situation?

O.K. Now that I've acted, what really happened? Was it what I wanted? How could/should I change my attitude or feeling?

R.F. Allen
Florida State University

001134

1. Take middle school students on a silent walk through the pioneer farm. Ask each student to use his/her senses: touch, sight, smell, sound, and taste. Experience this farm!

Later, sit quietly under a tree to pose the following sequence of questions and let students share their responses.

| | | |
|---|---|---|
| 1. | (Perception) | What did you see (touch, feel, hear, taste) at the farm? How did you feel about the farm? |
| 2. | (Differentiation) | Is the farm like your house? What are the differences between it and yours? |
| 3. | (Inferences) | Why are there such differences? Why did people in the farm live as they did? How would you feel about them, if you were around them? |
| 4. | (Generalizations) | How might they have helped you? What does the help mean for you? How would you feel about their help? |
| 5. | (Application) | What would you do if you were to meet them? How would they feel about your reactions? What could you do if you were in their situations? |
| 6. | (Evaluation) | Has anything changed in your feeling during this activity? Is that good for you and for others? Why? Why not? |

-- Sang-Ho Kim

2. The activities and questions listed below should be given to students prior to their visit to the pioneer farm, followed by a discussion upon their return:

1. Describe your impressions and feelings of what North Florida farm life was like during the 1880's.

2. Briefly describe each of the following artifacts. What does each tell us about farm life? Buggy, horse-drawn carriage, weighing scales, ox yoke, horse collar, types of plows, wagon tongue, smoke house, out-house, and trace chains.



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3. Thomas Jefferson advocated that those who made their living by farming possessed greater virtue than those who made their living in industry or manufacturing. In other words, farmers were less corrupt than the manufacturers and industrialists. Do you agree or disagree? Why?

4. Choose any one day of the week. Compare the activities of a male or female of your age group who lived on the farm in the 1880s with your daily activities. In what way may these activities be similar and/or different? So what?

-- Percy Gambrell

3. Experience the pioneer farm - take your time. Then, sit beneath a tree and cope with the following questions.

1. Imagine yourself as a baby on this farm in the late 19th century. Reflect upon and discuss:
   a) your responsibilities to the family
   b) your restrictions
   c) your social life
   d) your religious beliefs
   e) your education
   f) your family ties.

2. Imagine yourself as a young child (10 years old) on this farm. Reflect upon and discuss:
   a) your responsibilities to the family
   b) your restrictions
   c) your social life
   d) your religious beliefs
   e) your education
   f) your family ties.

3. Imagine yourself as a teenager (18 years old) on this farm. Reflect upon and discuss:
   a) your responsibilities to the family
   b) your restrictions
   c) your social life
   d) your religious beliefs
   e) your education
   f) your family ties.



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4. Imagine yourself as an adult on this farm (being the father or mother). Reflect upon and discuss your thoughts according to these six categories:

    a) your responsibilities to the family
    b) your restrictions
    c) your social life
    d) your religious beliefs
    e) your education
    f) your family ties.

5. Imagine yourself as a baby being born today in a modern hospital. Reflect upon and discuss your thoughts according to the six categories.

    a) your responsibilities to the family
    b) your restrictions
    c) your social life
    d) your religious beliefs
    e) your education
    f) your family ties.

6. Imagine yourself as a young child (10 years old) in today's society. Reflect upon and discuss your thoughts according to the six categories.

    a) your responsibilities to the family
    b) your restrictions
    c) your social life
    d) your religious beliefs
    e) your education
    f) your family ties.

7. Imagine yourself as a teenager in today's society. Reflect upon and discuss your thoughts according to the six categories.

    a) your responsibilities to the family
    b) your restrictions
    c) your social life
    d) your religious beliefs
    e) your education
    f) your family ties.

8. Imagine yourself as an adult with a responsible job. Reflect upon and discuss your thoughts according to the six categories.

    a) your responsibilities to the family
    b) your restrictions
    c) your social life
    d) your religious beliefs
    e) your education
    f) your family ties.



00137

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Compare the two case studies in a class discussion:

1. In which specific area of growth did we find the greatest difference among answers? (i.e., greatest differences were seen with two children while in the (baby/10-year-old/18-year-old/adult) stage.)

2. Account for this difference if you can.

3. In this specific case, which person would you rather be? Why?

It would be interesting to find out in which stage everyone in the class found the greatest differences. How many people found their greatest difference in the baby stage? Young child stage? Teenage stage? Adult stage? What interpretations can we place upon these observations?

-- Jack Jones

4. Explore the Pioneer Farm, find a place where you are comfortable and can relax for a short period. Think: what was this earth like one-hundred years ago? Close your eyes and place yourself in that time frame.

1. Are you happy in this time and place (an 1880s farm)?

2. Have human beings' basic needs changed?

3. What do you find interesting in the way people in 1874 lived?

4. What are some things that you believe persons your age were able to do that you know nothing about?

5. Imagine that it is 2074: will the lifestyle be so changed in that time period in reference to today (1974) that a museum will be made of our present lifestyle?

   How do you believe we will change or stay the same in the next hundred years? Express your judgment in some creative way (a poem, song, dance, essay, story, collage, etc.)

-- Craig Nelson

5. Walking through the Junior Museum's Pioneer Farm, it is important to remember that the items displayed there were valued by someone, saved and placed on display for others to see and appreciate. The objective of this activity is to explore the values and appreciations which lie behind the selection of artifacts for museum display, especially in the context of this 1880s farm.

Today when we go through the farm try to imagine that you are the farm curator of the Junior Museum. Just pretend that you have been given enough money to provide one new artifact or antique that would most add to the farm museum. This item can already be there, but perhaps you think it is so important the farm should have two, like two beds or barns. The "item" could

be a craftsperson, like a blacksmith.

b) Now that you have one item in mind, write down the reason you think it is valuable. Why would others think it valuable?

c) Talk to one other person about what you selected and your reasons. Ask yourself if you still think your selection is worthwhile. If not, why not?

(In large group.)
If you still think the item is worthwhile how would you get it? Did anyone think of something the class could work together to provide? If it is a reasonable goal, what could stop us?

-- Yolanda Hanna

6. Upon first glance, the pioneer farm at the Tallahassee Junior Museum reveals its "family" orientation. Secondary school students might explore this family orientation and its joys and conflicts in light of their own concerns and hopes for family life in the present and immediate future.

On a "silent" walking tour through the pioneer farm students are asked to select one item --an artifact --which reveals most to them about family life on a North Florida farm in the 1880s.

Comfortably seated in a shadey spot, the students share information about "their" artifact and what it tells them about family life. Students may sensitively question others' choices of artifacts and the inferences drawn about family life.

The teacher asks the students if they can imagine any potential family conflicts which might have arisen in such a family setting in the 1880s. The students might list the conflicts suggested. Then, groups of students are asked to role-play parent-youth conflicts in three time frames:

Then (1880s)
Now
Then-Now Mix

Using the role-play of conflicts, students are asked to list contrasts between family life then and now.

--Students should share their explanations for changes in the character of family life then and now, and in shifts in the kinds of conflicts.

--Students should identify characteristics of family life which they value and would like to see preserved or maintained in the family life of the 1980s.

-- Tom LoGuidice



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7. People are concerned about two kinds of power in our society. First, there is the power called energy --the power to do work. Second, there is the personal power of competency to cope with the demands of living --the power of skills.

Prior to the class visit to the Tallahassee Junior Museum, have the students identify an "average" rural home in Leon County. Have one-half the class list the power (energy) sources and uses in that "average" home. Have the other half of the class list the kinds of personal skills needed by the persons likely to live in that home.

During the tour of the Pioneer Farm, have one-half of the class study the energy sources and uses on that farm. The other half should infer and list the kinds of personal skills needed by the farm family of the 1880s.

While at the farm or back in class, compare and contrast power as "energy" and as "personal skills" for the contemporary rural home and the pioneer farm. Conclude the discussion with judgments about:

-- The more ecologically sound use of power (energy)
-- The more satisfying feeling of personal competency (efficacy)
-- The lifestyle I would choose (1970s or 1880s)

-- Robert West
-- Sylvia Anderson

8. Concerns and Diagnosis:

In observing middle school students in his/her class, a teacher has noticed that many children are not cooperating with one another. There are many "followers" in the class who seem to lack confidence in themselves as individuals (low self-image.)

Behavioral Outcome:

Do the students' actions and statements suggest that they are more aware of their individual worth or uniqueness (self-image?) Do their actions and statements indicate that they agree that cooperation is necessary in the classroom and elsewhere?

Organizers:

1. In many ways one person is like other persons, but each person is unique in valuable ways.
2. The way to confront any situation is with confidence in oneself as an individual.
3. Human beings have changed quite a lot from the way they lived in the past, but in order to survive at any time, persons must cooperate with one another.

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Content Vehicles:

1. Learners identify similarities between themselves and someone living at the 1880s pioneer farm. (common needs, etc.)
2. As the students walk through the pioneer farm they will observe the various artifacts of the many individuals who lived in the village. (blacksmith, farmer, storekeeper, tanner, sugar cane worker, etc.)
3. The students will read different accounts of how the early pioneer had to cooperate in order to survive.

Lesson:

The purpose of this lesson is 1) to increase the student's awareness of his/her own self worth and individuality, and 2) to help him/her understand that cooperation among individuals is essential in most situations he/she encounters.

Teacher:

Discussion of being "lost in a group" versus acting as an individual but having something (skill, idea, etc.) to contribute to a group situation:

--Was there ever a time when you felt like you were just "another sheep in the flock?" Share your thoughts.

--Was there ever a time when you were in a situation where it was up to you, alone, to come up with a solution and face a problem? Share your thoughts.

--What about when you faced a situation with others? (The students will be asked to read accounts of how the early pioneers had to cooperate in order to survive in addition to accounts of individuals.)

Teacher:

The teacher explains to the students that as they walk around the pioneer farm they should use their imagination to the fullest in developing a picture of what life was like in the pioneer time. Especially observe the outward symbols of the different individuals who lived at that time.

Classroom Discussion:

--Do you think that the community could function if everyone were a blacksmith or if everyone wanted to manage a country store? Explain.

--If you were living at that time, what would your position in the village be? Explain your choice. Describe yourself. What would others in the village think of you? Would they depend on you?

--What could happen that would transform the lifestyle of the people in this community? (Could it be something which you initiated?)



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Conclusion:

Compare the classroom to the pioneer farm as far as defined roles, expected behavior, cooperation, etc.

Would you say that the classroom is mainly made up of individuals or "followers" of individuals?

-- Kit Bieschke

9. Take a few minutes and look around the farm. Look at all of the tools and machines that they used one hundred years ago. Think about all of the changes that have taken place from then to the present.

   1. Do you think these changes were good ones? Why?

   2. How do you think a person 110 years old feels about the way things are today in contrast to yesteryear?

   3. Would you have liked to live in these "pre-industrial" years? Describe what you think your life would have been like. Compare it to your present life. Which do you like better? Which period do you think was easier to live in? Why?

   4. Imagine you were abandoned on an island with a farm setting similar to this one. Do you think you could survive? Tell why you think you would or wouldn't survive.

-- Ricky Keith

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# A Wide Game

at the

Wide World of the Tallahassee Junior Museum

Prepared by

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Connie Taylor
Melinda Wood

Junior Scout Leaders
The Girl Scout Council of Apalachee Bend

With the Project Staff

November, 1974

## 1. INTRODUCTION

A Wide Game is a special kind of Girl Scout game played all over the world. It is called a "Wide Game" because it covers a bigger area and lasts longer than most games.

The game is played on a special kind of a trail and often has a story or a theme. The story or theme of your Wide Game will depend on the place where you play the game and the skills you would like to learn and practice.

You can play a Wide Game at camp, in the city, in the woods, or even in a house. To follow the trail you must use numerous skills --observing, smelling, map making, knot tying, fire building, reading directions, etc.

The trail map is followed by groups of two or three. Each group starts out along the trail at least ten minutes apart.

This booklet includes an example of a Wide Game to be set up and followed at the Tallahassee Junior Museum. Other sections of this booklet provide background information for the leaders, skills that need to be learned before the girls go on the Wide Game, and a list of badge requirements that can be mastered in conjunction with the Wide Game.

The sample Wide Game need not be done exactly as we planned it. If you wish, add your own ideas.

After your troop does the Wide Game in this booklet, each patrol may wish to make a game of their own for other girl scouts to follow.

Have fun!



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## 2. SKILLS TO LEARN AT TROOP MEETINGS

### Fire-building

Your troop may wish to build a fire at the end of your Wide Game--one to cook on or one just to sit around. It is your responsibility to build a safe one.

Find a safe and suitable place away from under low-hanging trees and clear the ground so the fire cannot spread. Always keep something around to put out your fire - water or sand or dirt and shovel.

Once your spot is ready you can make a fireplace of logs, bricks or flat stones.

To build a wood fire you need three different kinds of fire material: tinder, kindling and fuel.

Tinder should be as thin as a match if twigs, dry leaves or dry moss and should burn as soon as it is touched with a match.

Kindling are larger sticks, pencil size that are dry and break easily.

Fuel which keeps your fire going is large limbs that take longer to burn. Pine logs make a hot fire but oak lasts longer.

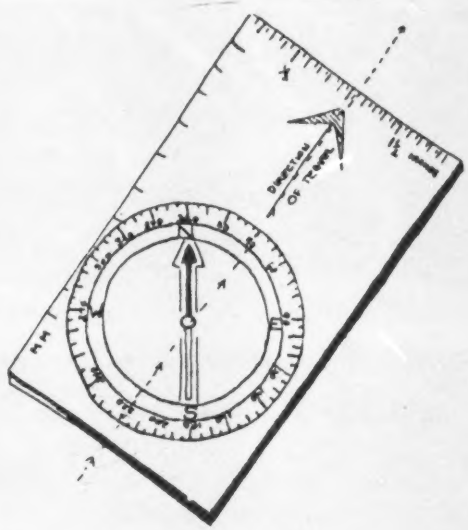
For different kinds of fires for your special needs consult your Junior Handbook pages 111-122. Be sure your girls have some practice in making various kinds of fires before they do the Wide Game.

### Using A Compass

All the girls should get a chance to practice using a compass before they attempt the Wide Game. They will need it to tell direction.

Learning to use a compass is an important part of learning about direction.

Silva Compass
1. Plastic Base
2. Direction of Travel Arrow
3. Scale in millimeters and inches



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4. Metal Housing
5. Red-tipped Magnetic Needle
   (The red tip always points toward the north magnetic pole unless influenced by another magnetic field close by.)
6. Black outlined arrow
7. Letter Directions
8. Numerical Degrees (0° to 360°)

To use the compass you must decide in which direction (N, E, S, W) or degrees you wish to go. Turn the metal housing to align your desired direction or degrees with the Direction of Travel Arrow.

Holding the compass in front of you and level, turn yourself until the red-tipped arrow and the black outlined arrow, in the bottom of the compass, point the same way. Walk in Direction of Travel Arrow.

A simple pocket compass has a face with direction letters N, S, E, and W as well as NE, SE, SW, and NW. It also has degrees from 0° to 360° running clockwise around the face. In the center is an arrow usually red-tipped which points in the direction of north magnetic pole.

To use this compass you must know the direction you wish to travel, and keeping the needle pointing north, walk in the desired direction.

## Watch Compass

Sometimes when no compass is available, try your watch. Using a watch, a stick and the sun you will be able to tell direction.

Put the watch on the ground and place stick upright at the outer end of the hour hand. Turn the watch slowly until the stick shadow falls along the hour hand. Halfway between the shadow and the 12 o'clock numeral will be the direction South.

It is also well to remember that in finding direction in the morning that the sun always rises in the East and in the afternoon sets in the West. This will also aid you in direction. If you face the sun in the morning and extend your arms, the left arm is pointing North, and the right arm South. If you face the sun in the afternoon and extend your arms the right arm will point North and your left arm will point in the direction of South.

## First Aid

Before doing the Wide Game, the girls should learn how to care for a snake bite, a sprained ankle, a broken arm, a gash, and a puncture wound. To learn these first aid skills, use pages 304-311 in the Junior Handbook.



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## Knots

For the Wide Game each girl will need a four foot rope. Before going to the Junior Museum each girl must whip the ends and hank the rope. She can then carry the rope on her belt.

In a troop meeting the girls should practice various knots (pages 92-95 of the Junior Handbook) and be prepared to make a clothesline (p. 101).

### 3. EQUIPMENT NEEDED

**Per Girl:**
- note pad
- pencil
- 4 ft. long rope

**Per Group:**
- compass
- map

**For Setting up Trail:**

| | |
|---|---|
| Starting point | - straight pins<br>- scissors<br>- yard sticks<br>- rulers |
| Station 1<br>(Animal Observations) | - no special materials at station<br>- sticks for arrows to station 2 |
| Station 2<br>(Leaf Identification) | - tissue paper (1 sheet per girl)<br>- leaf identification information from booklet<br>- crayons<br>- tree book (optional)<br>- yarn to mark trail to station 3 |
| Station 3<br>(First Aid) | - one adult to supervise<br>- triangle bandage<br>- ribbon to mark tree to measure on path to station 4 |
| Station 4<br>(Map Reading) | - one map for each group<br>- arrows made of sticks for last part of trail |
| Station 5<br>(Fire-building and clothesline) | - shovel<br>- buckets<br>- marshmallows<br>- 4 ft. rope<br>- bandana |



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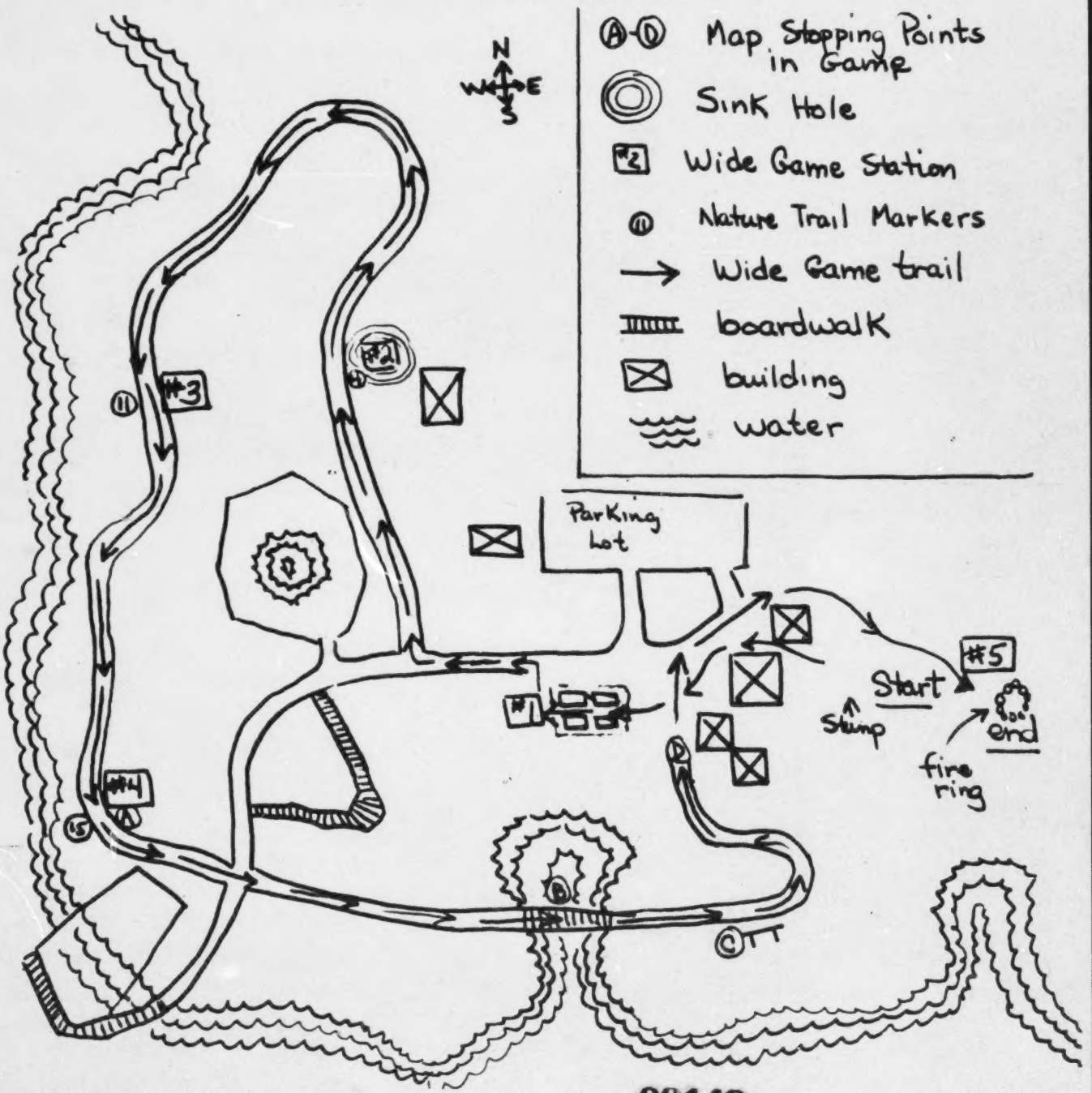
4. NOTES TO LEADERS ON SETTING UP THE WIDE GAME TRAIL

The sample Wide Game consists of a starting point and 5 stations. There will be a note at each station which tells the girls what to do there and tells them how to get to the next station. Sometimes the girls are instructed to observe or do something along the trail. It will probably take each group around 45 minutes to complete the Wide Game Trail. You need to add waiting time on the beginning and time to build fires and cook marshmallows on the end to determine the total time for your troop. A troop of 16 girls (6 groups) took 3 hours to do the Wide Game.

The map is included to aid you in setting up the trail.



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Since some other museum visitors may be tempted to pick up your notes or in some other way destroy the trail, you may choose to do the Wide Game when the museum is not heavily used. You can also place a sign by each note which says "Please do not take this note. We need it for a game."

You will need 3 adults to set up and carry out the Wide Game. When the girls are doing the game, it is best to have 1 person at station #3 and 2 at the starting point. One of the leaders should be sure to sweep through the trail at the end to be sure all notes, yarn, etc. is removed.

Starting Point

Before you begin the game, go over some general information with the girls. Include the following points:

a) Tell the girls what they'll be doing - following a trail and then performing skills at stations along the way.

b) Check that each girl has pad, pencil and rope.

c) Tell girls they will all get a chance to share their notes at the end of the Wide Game. You can have a sharing time while waiting for the fire to die down.

d) Tell girls to go straight on trail unless game trail signs specify otherwise. If they get lost, go back to station and re-read note.

Each team begins at the large tree stump to the East of the main building and receives the clue of the animal track they will follow to station #1.

If you wish you can use the animal tracks in this booklet. Cut up the page and place each track along the way to the animal zoo to the West of the main building. Use straight pins to secure prints to the ground.

Before each team sets off, be sure each girl has a 4 foot rope, pad and a pencil. Suggest to the girls that they write the station number next to anything they record for that station in their notepads. Since teams will be spaced 10 minutes apart, the girls are likely to get impatient while waiting. We suggest you divide the total troop into 2 groups - one which remains at the starting position and one which goes to the fire circle to do the end of the Wide Game activities.

Starting Site Group: Note - Not all girls will complete these activities. If they want, they can continue to work on them when they finish the Wide Game trail. The first team will start right off without doing these activities. (You will need several yard sticks and/or rulers.)

a. Measure something with 4 ft. rope such as tree stump diameter or height.
b. Measure length from nose to tip of finger.
c. Measure arm spread from hand to hand.
d. Measure length of foot.
e. Determine pace.
f. Measure height.
g. Determine which finger joint is approximately one inch.
h. Measure height (I) can reach.
i. Measure hand spread from thumb to finger.



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(Most of these exercises, plus more, are on page 91 of the Junior Handbook) If the girls finish all the measurements have them do something else in the farm area while they wait. Consult another girl scout booklet for ideas.

Fire Circle Group: Do final station activities (making clothesline and building fire.) When most teams of first half of troop have left the starting point, move the other half over to do the measuring activities.

Station #1 - Wildlife Observation

Location: Animal Compound

The footprints should lead the girls through the animal compound. Place the Instruction Note on the west fence so it is easily visible. The note tells the team to observe one of the animals and to write down some of their observations in their notepads. The note also tells the girls to go to the Nature Trail and follow the stick arrows to Station #2.

Place stick arrows along the side of the trail so they won't get destroyed. Post #4 on the nature trail designates the Sink Hole (Station 2) which is behind the Murat House. The arrows should lead the girls to the bottom of the sink hole where the materials for Station 2 will be placed.

Station #2 - Leaf Identification and Printing

Location: At bottom of Sink Hole behind Murat House, by #4 post on nature trail.

Equipment: Board or table to make prints on. Tissue paper, crayons, piece of yarn, tree identification information. You can use identification information provided in this booklet if you wish.

Each girl will make a leaf print and determine the name of the leaf. She should put leaf print and name in her pad for safe-keeping. From post #4 to post #11 every so often tie bright colored yarn on the trees or weeds. Put a piece of yarn at station #2 so the girls will know what to look for in following the trail. Put another piece of yarn in the Sink Hole so the girls know which way to go out of the Sink Hole.

Station #3 - First Aid

Location: Post #11

Equipment: Triangle bandage. An adult must be at this station to check out the girls' first aid skills. We have used a sprained ankle. (p. 307 in Handbook) You may decide to choose some other injury or do different ones with various teams.

At this station the adult will give the girls the instruction card about the injury one of them has, ask them what they will do, and then observe. You can determine some point system to indicate degree of correct procedure.

The team will follow the nature trail to Station 4. Along the way they will use their ropes to measure the height of a tree you have designated with a "yellow" ribbon. The tree should be 5 ft. or less so they can measure it without trouble.



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Station #4 - Map Reading

Location: Post marker #15
Equipment: One map per team and compass (carried along.)

The girls will pick up the map. They will use their map and their compass to find their way to Station 5. They will also be asked (on the map) to do certain things along the way.

a. On bridge - use your compass to find out what direction you are walking.
b. At post #24 - sit on bench and listen or smell. Write observations.
c. At building - use compass and go North until you find arrows. Follow arrows to Station 5 (fire ring.)

All you will need to set up is arrows from big tree directly North of trail and around North side of building to the fire ring just East of the starting point.

Station #5 - Fire-building and Hanging Up the Wash

Location: Fire Ring at farm
Equipment: Shovels, buckets, four foot rope, bandana.

Each group will build a safe A-frame fire in the fire ring area. (Be sure girls with long hair have it tied back so they won't catch on fire.) They will also use 2 ropes to make a twisted clothesline and hang a bandana from it.

Those groups who didn't get a chance to do the starting point measurements, can do them while they wait for the other groups to finish.

While waiting for the fires to be marshmallow-ready have the girls share their experiences and what they wrote down along the trail.

- - - * - - -

Remember to clean up trail!



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5. INSTRUCTIONS FOR GIRLS

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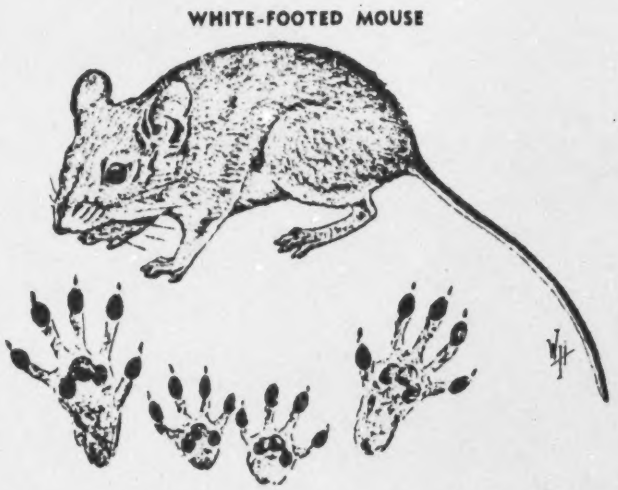
(Cut the instructions out and place them at the appropriate stations.)

Starting Point: Footprints

Follow the mouse until you come to Station #1.




Five-toed paired tracks of mice and rats fairly distinctive. Mice and rat tracks may also include tail marks, either long or short.

Station #1: Wildlife Observation

Pick one animal. Write down its name. Watch it for at least one minute. Write down some of your observations.

---

After you complete the Station 1 activity, go to the nature trail sign and then follow the stick arrows to Station 2. Walk slowly and carefully so you can observe the beauty around you and so you will not destroy the stick arrows.

Station #2: Leaf Identification and Printing

Look around you. There are at least 5 different kinds of trees in this sink hole area. Use the materials provided to identify (name) one tree and then make a leaf print. Bring your leaf print with you and write the name in your note pad.

---

Follow the yarn to Station 3. Also, find something along the trail that starts with the same letter as your first or last name. For example, if your name is Peggy, you could collect a purple flower or a seed pod. Bring your "letter" object with you.

Station #3: First Aid

One of you has tripped over a root and gotten a sprained ankle. Show me how you will care for your injured team member. How will you get her safely back to camp?

---

When you have cared for your injured member, go carefully along the trail. Look for a tree with a ribbon. Measure the height of the tree with your rope. Continue to follow the trail until you reach Station 4. It's a long way to station 4.

Station #4: Map Reading

Pick up one map for your team. Follow it to Station 5. Do the things the map tells you to do and record your observations in your note pad. You will need your compass. Find out what direction is North, face that way, and look at the map (with N up) and begin following the map.

Station #5: Fire Building and Hanging Up the Wash

Congratulations! You successfully followed the trail.

Now build a safe A-frame fire using three (3) sizes of firewood. Try to use only one match. Cook marshmallow to a golden brown color and then eat!

While waiting for fire to be marshmallow-ready, make a clothes-line (2 twisted ropes) and hang a bandana from it.

Use for Tree Identification at Station #2.

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PINE - Tall evergreen tree with straight trunk. Leaves are slender stiff needles. Produces cones made of hardened woody scales.

WATER OAK - Tall tree with leaves that are broader at the tips. Loses leaves in the Winter. Produces short small acorns that are almost black.

LIVE OAK - Evergreen tree with broad spreading crown. Leaves are small, oval shaped, with roumded ends. Produces dark colored acorn that is tapered and slender.

HICKORY - Tall tree with long leaves that have 3 to 19 leaflets on them that are thin, sharp-pointed, and have fine-toothed edges. Loses leaves in the Winter. Its fruit is the hickory nut.

DOGWOOD - Small tree with dark red-brown bark. Blossoms in the Spring with white flowers of 4 large white petals. Produces clusters of red berries in the Fall and loses leaves in the Winter.



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(To leader: Make a copy of this map for <u>each team</u>, and place maps at station #4.)

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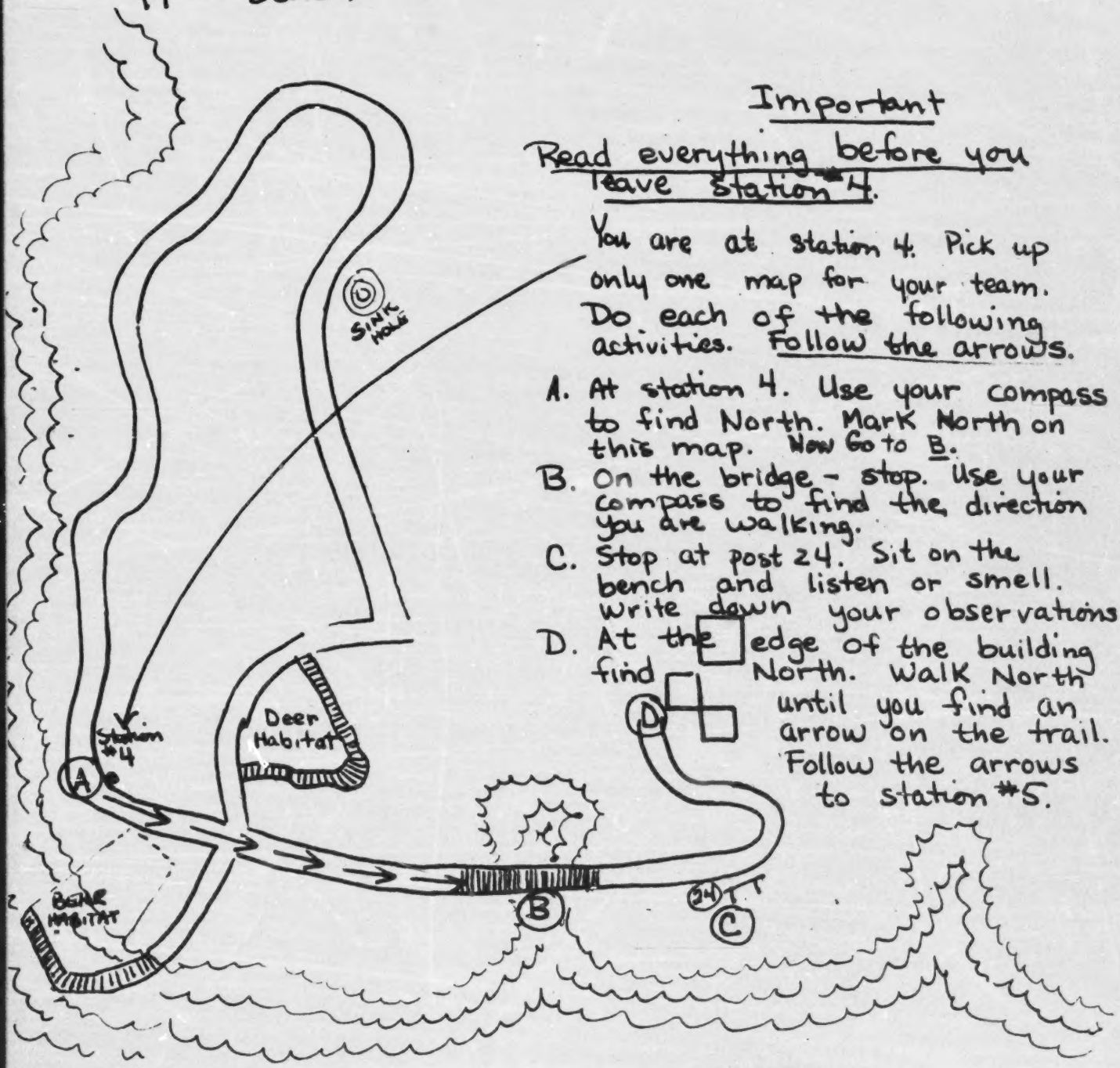
# Station #4 to Station #5 Map and Instructions

**Legend**

- lake
- your trail
- boardwalk
- building
- bench




**Important**

**Read everything before you leave station #4.**

You are at station 4. Pick up only one map for your team. Do each of the following activities. Follow the arrows.

A. At station 4. Use your compass to find North. Mark North on this map. Now Go to B.

B. On the bridge - stop. Use your compass to find the direction you are walking.

C. Stop at post 24. Sit on the bench and listen or smell. Write down your observations -

D. At the edge of the building find North. Walk North until you find an arrow on the trail. Follow the arrows to station #5.



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Footprints

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## 6. LIST OF BADGE REQUIREMENTS

| Badge | Page in Junior Handbook | Requirements |
|---|---|---|
| Backyard Fun | page 320 | Possible #1,2,3,4,6,7,8,9,10 |
| Collector | page 322 | Possible #1, #5 (Dolls, etc.) |
| Dabbler | page 326 | Possible #6 |
| Drawing and Painting | page 328 | Possible #7 |
| Folklore | page 329 | Possible #1 |
| Foot Traveler | page 330 | Possible #1,2,3,4,5,6,7,8,9 |
| Gypsy | page 331 | Possible #1,2,3,4,5,6,7,8,9,10,11 |
| Health Aid | page 332 | Possible #3,4,5,7 (Before hiking) |
| Indian Lore | page 336 | Possible #5 (Make the sheath at home to carry knife) |
| My Camera | page 339 | Possible #7 |
| My Community | page 340 | Possible #1 |
| Observer | page 345 | Possible #1,2,5,6 |
| Outdoor Cook | page 348 | Possible #2,4,5,6,7 |
| Prints | page 352 | Possible #1,2 |
| Rambler | page 353 | Possible #1,2,3,4,5,6 |
| Songster | page 356 | Possible #1 |
| Weaving and Basketing | page 362 | Possible #6,7 |



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The Tallahassee Junior Museum was established in 1962 on a site outside the city near Lake Bradford to provide the community a learning center for early Florida's pioneer history and environmental studies. Most of the Museum's education programs have been youth-oriented (in 1972-73 over 26,000 school children visited the Museum), yet the exhibits, wildlife, pioneer farm and nature trails have a tremendous appeal for the entire community.

The fifty acre site preserves the natural flora and fauna. The nature trails meander over forty acres of flowers, open fields and forests. Large oaks provide a canopy of shade and boardwalks over cypress swamps hold a special fascination for visitors. Birds are seasonally abundant. Small mammals are kept in an animal compound where they are used for study. Other creatures like the white-tailed deer, bald eagle, black bear, and waterfowl are exhibited in large natural habitats which allow them relative freedom. The Museum plans to have most of its animal collections in natural habitats as funds become available.

The Museum's "Big Bend" pioneer farm is authentic. The buildings were built in the 1880s at Hosford, about forty miles west of Tallahassee. Only the smokehouse and the blacksmith shop were reconstructed--and then, old materials were used. The farm area is enclosed by a split rail stake-and-rider fence also moved from the original farm site. The farm animals are typical of those found in early Florida barnyards.

The main Museum buildings house changing exhibits on natural science, history, social sciences, art and music. The Natural Science Building features diaramas on birds, a bird viewing window, and the Museum's collection of live reptiles.

The Tallahassee Junior Museum is a tremendous community educational facility for the Tallahassee area and represents a substantial investment of time and capital by members of the community. At a time when the community is very concerned about environmental quality--demanding increased planning and protective ordinances--the museum offers the place and the resources for community-wide environmental awareness and education programs.

For additional information, contact:

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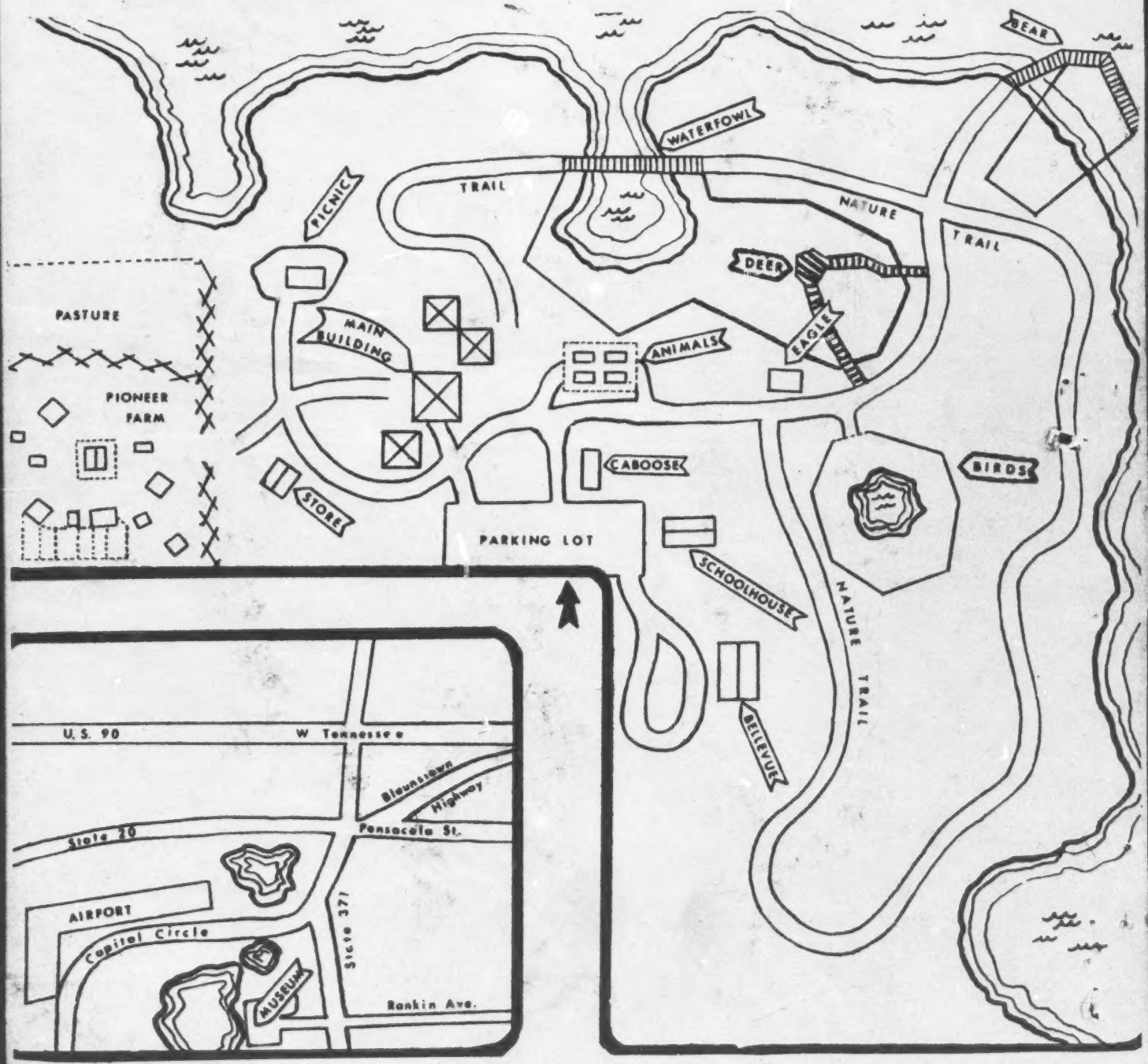
(904) 576-1636

# tallahassee junior museum

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